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AND
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THE FACULTY

OF THE

Pennsylvania College of Dental Surgery.

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DENTAL TIMES.

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DENTAL DIPLOMAS.

(An Essay read before the Brooklyn Dental Association.)

BY C. A. MARVIN, D. D. S.

The question is often asked "of what use is a diploma?" and it is prompted by a variety of motives. Some ask it in all sincerity, desiring to know the real advantage of possessing a diploma. Some ask it ironically, manifesting thereby that they deem the parchment of little worth; while others propound it in a manner to cast ridicule on either the institution that grants it, or the recipient, or both.

The introduction of the subject for discussion in this Association, was for the purpose, undoubtedly, of eliciting a full and clear expression of views as to the real benefit of a diploma, to the end that a more earnest support might be secured for those educational institutions by which diplomas are granted.

In considering this question, it is proper to take the points it suggests in their natural order. First, then, What is a diploma?

A diploma is a certificate issued by the Faculty of a College, certifying that the holder has passed through the usual course of study, has been examined as to proficiency, and is regarded as entitled to the endorsement of his censors, of which endorsement the diploma is the evidence.

A dental diploma is a certificate of endorsement as to proficiency in professional knowledge. It cannot be expected that all shall attain the same degree of proficiency. This is simply impossible. Minds differ widely both as to the nature and degree of their faculties. Some are specially theoretical, others eminently practical. It would be manifestly unjust to require of these two different classes of minds exact coincidence with the same rigid standard. The theoretical youth will quickly seize and master the ideas presented on the page, or by the living teacher, and rehearse them verbatim, with scarcely a deviation from absolute exactness, while the practical youth, with little relish for the abstruse reasoning, the minute analysis, the obscure deductions of the metaphysical author, searches only for such ideas as are palpable and bear directly upon material results.

In testing these two classes of minds, after a course of study common to both, it is obvious that regard must be had, by the judge, to the difference between them, in order to decide what evidence of their proficiency to require. Else, a man whose tongue can roll off the sentences of authors with readiness, but who has little faculty to perceive and appropriate the underlying principles, and make them governing rules of action, will bear off his parchment amid the smiles of professors and the congratulations of friends ; while he who can scarcely give a premise and conclusion in the author's language, but who has stored the inner chambers of his practical mind with valuable rules and principles, may receive his diploma, if at all, from the reluctant hand of the teacher, with no smile of commendation, and be deemed no credit to his alma mater. Such tests, therefore, as are calculated to display the real fitness of a man for his intended life's work, are manifestly the proper tests by which to judge of his desert of a diploma. This must be so, that the diploma be what it professes to be—an evidence of competency.

A diploma, moreover, is not only an endorsement of its holder, it is also the public averment of the Faculty of their own competency to judge and pass upon the qualifications of other men. Hence, a diploma becomes more or less valuable, just in proportion as they whose names are appended thereto are themselves higher or lower in the scale of proficiency and skill. This being so, we see the wisdom of entering such institutions as stand eminent for thoroughness of instruction and the acknowledged ability of the members of their Faculty.

The second point which I propose to examine is this: What are the requisites for a diploma?

In one word, competency. Educational institutions require this competency to be attained by a course of study, marked out by themselves and continued for such a period, as in their judgment is sufficient to discipline the mind, and furnish it with a knowledge of the foundation principles on which the various branches taught are based. This is particularly so in colleges where professional education is pursued. The reduction of such underlying principles to practice cannot be made, except to a very limited degree, in an institution of learning. In so far as it can be done, however, to just that extent is the student better qualified for the practice of his profession, and of course more worthy of his diploma. Education possesses a value which is entirely intrinsic. Whenever obtained, its value is recognized and acknowledged. It matters not whether gained in this college or that, its *possession* is the desideratum, and the power it gives its possessor will be felt in whatever society he may be admitted. It is true that the examination of a candidate for a degree, who has been unknown to the Faculty through his student life, may be more rigid, ought to be more rigid, than that of one of their own students; that is, it will be of a different character, and take a different direction, embracing points not included in a student's examination. It will not deal with principles abstractly, but by scanning results, the fact will be elicited whether such principles are rightly understood. Such an examination will necessarily take a wider range, developing those important proofs of fitness, which can only be known after a dentist has embarked upon his professional life; and when a Faculty have fully satisfied themselves of the worthiness of the applicant, what reason is there that they should not give him their endorsement in the shape of a diploma?

It is not the particular *routine* of study but a *furnished mind*, that Faculties should desire to see. It is the ability to achieve creditable results that furnishes the best title to the degree of Doctor of Dental Surgery. If that ability is gained by a reputable practice, of years in length, why is it not as just a claim to college endorsement as a two or three years' course of study? If the comparison is insisted on I will go further, and say that the dentist who has for years carried into practice the principles of his profession, who is able to diagnose a case correctly and treat it successfully, who can make of broken and diseased dental organs useful and healthy ones, is far, *far* more worthy of a diploma than the mere fledgling who knows principles only by their names, who understands methods of treatment only in theory, and who has yet to learn that most difficult and most important of all branches—*the practice* of his profession. Let students, with their clean parchments and unskilled fingers, hesitate before assuming airs of superiority over those, their seniors, who, without diplomas, have achieved results of which any man may well be proud. And if, after years of arduous professional life, these last do accept from a college a diploma, let no smile of ridicule cross the lips of the recent graduate. It is not becoming. The diploma thus received has been well and fairly *earned*. Its bestowment is not a mere empty compliment. It is an evidence of faithful labor in the past, and of competency to perform proper service in the future. And no previous term of college study can of *itself* qualify a man for future usefulness in a profession, as thoroughly as years of close application to the *practice* of those principles which must govern all his actions.

It is true there must be a foundation of general education upon which to base professional knowledge. The student should have this before he enters a Dental College, or he should be sent out to obtain it. Nothing can supply the place if this be wanting.

Scientific principles, stated ungrammatically, grate harshly upon the educated ear, and lose their effect; systems of practice, unintelligibly explained, become the merest nonsense; terms, improperly applied while discoursing upon professional matters, render the speaker ridiculous. Education must be had; and when that is possessed, and, in addition, the complete furnishment which three-fourths of a score of years of practice affords, no more complete or authoritative claim for a diploma can be presented by living man. Let it be thirty dollars or three thousand that the certificate costs, it matters not. It tells the truth when it says that the holder is deemed competent to practice the difficult and complicated profession of dentistry.

And this leads us to the third point which I propose to consider, viz: *the benefit of a diploma.*

As I have already intimated, to be at all valuable in reality, *it must tell the truth.* Though elegantly engrossed, and bordered by a massive and gilded frame, it is nothing unless its statement be correct. Nothing? I mistake; it is something, though that something be worse than nothing. It is a constant, ever-abiding rebuke to him whose name appears therein. To own a diploma and not deserve it, displays a want of good sense and a want of principle. It is to expose one's self to the keenest ridicule; for be it known, incapacity to act the part assumed will be discovered. It cannot remain concealed; and no verdict of condemnation is so speedily and so freely rendered, as that against a man who seeks to occupy a false position. To be valuable, then, a diploma must state the truth, and when true, it is so in various ways.

1st. It is valuable obviously as an evidence of worth and fitness.

It is a pleasing reflection to a worthy man, that his sincere purposes and earnest efforts are appreciated by his fellow men. Men's opinions of their own merits are often deemed partial and exaggerated, and he who desires to be simply honest in this self-judgment, will often find himself in doubt as to what is strict justice, and what partiality. At such times, it is not only a help but a great satisfaction to have his judgment of himself confirmed by the endorsement of those whose position enables them to weigh and estimate the abilities of men. This confirmation, a glance at his diploma gives him. Not only this, but the consciousness of possessing the confidence and approbation of eminent men, strengthens and encourages him in his arduous duties. It inspires the feeling that labor and study have not been spent in vain, and that an industrious pursuit of useful knowledge and a high degree of proficiency *will* secure its reward, viz: the freely given and cordial esteem of good men.

Again, a diploma, as an evidence of worth and fitness, is not only a benefit to a man in the way already suggested, but in this also, that it secures for him the confidence of those to whom he is unknown. This is the benefit usually conceded to the possession of a diploma—and it is no slight one. Viewed in the light of an improvement to business, it may count for very little. Many gentlemen of our profession who never had a diploma have suffered no lack of patronage, and have too much honor to receive anything of the kind in the expectation that it would increase their business. Of this they have enough that comes through no fictitious influence, but because of superior ability.

But the advantage is this; it stamps a man as the friend of education, as a believer in the necessity of thorough preparation in order to practice, successfully and honorably, the arduous profession of dentistry; as a man who holds well-defined views as to the relation of a practitioner to his patient; who considers his profession as demanding the highest ability and the most thorough culture. Known to believe thus, he is regarded with respect, and as he rises in the estimation of the public so his profession also is elevated. And the more eminent members of our profession there are who possess themselves of a diploma and take their position among the public advocates of thorough education on the part of students, and a certified endorsement by an intelligent Faculty, the sooner shall we see dentistry rising to its proper place among the learned professions of the age, and its practitioners admitted to a full and unrestricted fellowship with those who now hold themselves aloof, and arrogate the sole right to the title of doctor.

2d. A diploma is an advantage not only as an evidence of ability, but as a perpetual spur to greater proficiency.

In this consideration of the benefits of a diploma, I speak only, as may be seen, of true men, men of well-balanced minds—men who realize that life is best lived when duty is best done.

Men of this stamp are superior to a feeling of pride or vain glory in the possession of a diploma; superior to a feeling of conceit, when they find their judgment of themselves confirmed by others. Those who are so weak as to indulge such sentiments, if there be any in the world, advance so little from the low position, into which pride and conceit have cast them, and display such slight attainments, and so little of the sound material of which strong men are made, that it were a waste of time to discourse upon their petty experiences.

But the men, worthy the name, whose sentiments I have endeavored to express, are actuated by far nobler motives. They feel that having received the endorsement of able men, duty to themselves, to their profession, to their endorsers, demands that they labor to preserve their claim to that endorsement not only, but to make that improvement, day by day, which is naturally expected of intelligent men. They would consider themselves to have failed in duty, should no marked increase of knowledge and capability be discernible in them, with each twelve-month that rolls over their heads; and a diploma is a constant reminder to them of this obligation. Hanging silently by the wall, it still points as with visible finger, to elevations of greater and greater altitude, and its admonitions more forcible than if in audible tone, is clearly understood—" Onward and upward," thus only shalt thou fulfill thy duty.

BROOKLYN, N. Y.

CONSERVATIVE DENTISTRY.

(An Essay read before the Semi-annual Meeting of the Merrimack Valley Dental Association, May 2, 1867.)

BY DR. D. B. INGALLS.

MR. PRESIDENT AND GENTLEMEN OF THE MERRIMACK VALLEY DENTAL ASSOCIATION:—When the word *essay* was first applied to its present use, it was intended, I presume, that from the subject chosen there should be extracted what there was of truth, and placed in an available form for the reader or listener. In this paper I do not aspire to realize that idea; not for want of crude material in my subject from which to assay the truth, but rather, perhaps, from a native modesty that would prevent my boldly treading where our brightest lights cast conflicting shadows, and I shall approach the subject of conservative dentistry with a freer use of interrogation points than a finished essay would warrant.

Our profession has been highly extolled, but none too highly, if we grasp fully the idea of our calling; we are one division of a great army fighting against a common enemy. No man, whose heart beats in harmony with a fallen race, can fail to sympathize with the oft-repeated exclamation, " Oh, why couldn't our teeth have lasted as long as the rest of the body?" This is often uttered by those whose bloodless cheek and deficient pulse too plainly tell us that if the other organs of the body could be laid open to sight, they would have nothing of which to boast over the decaying teeth.

Mortality is written in intelligible lines upon each organ separately, as well as collectively. Attribute it to what you will, death has been the great enemy of the animal man, at least since that unlucky day when ill-advice robbed him of his Eden home, to our own times; and his presence is as assuredly announced by the aching tooth as by the fevered brow.

The teeth, in partaking more of the nature of the epidermic tissues, are not in so devitalizing sympathy with the other members of the body as the more vital members are with each other; but, as in mechanic arts, we surrender speed to gain power, so with the teeth, by being relieved in a measure from that circle of sympathy, they lose, in the same degree, the recuperative powers enjoyed by the other members. That the teeth, of themselves, cannot be treated physiologically, I do not wish here to deny; that the surrounding parts can be induced to endure them for a while after the slender thread of life has been broken, we all know.

But the question I wish to ask is this, can their texture be improved by any remedial treatment, or any constitutional improvement of the general system? Were we to assume the affirmative, we might be asked, if we had been able, under the most favorable circumstances, to heal a blemish brought by a tooth from the original laboratory, or restore a particle that had been removed by a later enemy, by remedial agents? If we have not done this, it would be easy to claim that we had strengthened their powers to resist decay; but, should we be abundantly able to substantiate that? Are we quite sure the fact would not be, that we had improved the fluids that constantly wash them and weakened *their* power to destroy? It would seem, sir, that these fundamental laws should be settled, that we might know where to begin, and by what laws we are to be governed in our preservative dentistry.

Can we treat the teeth physiologically? or is our mission as dentists accomplished when we have carefully filled and cleansed them? It is pleasant to talk about things that we can do beautifully, and the more beautifully we can do anything the more pleasantly we can talk about it.

But there are some things, Mr. President, I can not do, and others I dare not do; and, sir, I will now introduce two patients to illustrate my meaning.

The first patient I wish to present is a gentleman, fifty years of age; I use the word gentleman in its most refined sense, more readily from the fact that he keeps his teeth clean. He takes a seat in your chair, and wishes for advice with regard to his teeth. You look into his mouth, and are pleased with the beauty and perfect formation of the organs before you—cleanly with nature's own tints, unmarked by caries or *golden crowns;* but, on a thorough diagnosis, you discover that the alveolar processes have gradually wasted away, until the teeth are quite loose, not from the effects of tartar or any visible cause; but you feel, while looking at the case, that there is some secret, hidden enemy at work, and your confidence is not at all assured when you are informed that many of his ancestors lost their teeth in the same way, and if there was wisdom enough in the dental profession at the present day to accomplish the object, he should like to employ it to save his.

The question I wish to ask is, could you give the patient any assistance that would ward off the approaching danger? If so, what? That, sir, is among the things I cannot do as well as I should like to.

My next patient is fairer and of more delicate make, seventeen years of age. With sad countenance she informs you she is having trouble with her teeth, and wishes for your services. She has confidence in the dental profession, and you in particular, Mr. Chairman. She wishes to put herselt into your hands, (professionally, of course,) to have just that done for her teeth that your wisdom would dictate, regardless of expense. A capital patient you see I have got for you. The usual etiquette of the occasion is gone through with, which you know so well how to perform, Mr. President, and the case is before you. You find the centrals, laterals and cuspids slightly decayed; the bicuspids, the pulps exposed in all of them, and the probable seat of the pain that brought the patient to your office. The first molars you find with their pulps dead, and the crowns one-third gone; the second still worse; the third molars not yet erupted. What would be your advice, and how should you treat the case? I present this patient, not that there is anything peculiar in her case, but *because* there is not.

There has been much written and said about treating and filling necrosed teeth, and we are led to believe that some would extend the operation to the whole thirty-two teeth, without asking themselves the question, if they may not be trifling with the health of the patient.

When we remember, sir, that some of the fathers recommended the extraction of a sound tooth, when its antagonizing tooth was gone, to save the system from the tedious and exhaustive process of expelling a useless member, I think we may, with propriety, discuss the question, how many dead teeth, though they have golden crowns, can an ordinary constitution endure without injury to the health?

I know, sir, that I am dealing with a darling hobby; it is exceedingly professional to say, "We extract very few teeth at the present day."

Now, sir, the few thoughts I have jotted down here, as I said at commencing, are not intended to point out rules to govern us in our practice, but rather to provoke a discussion, if possible, upon the little things which go to make up our professional life, believing it more profitable than that you should soar into the ideal world, where we ordinary mortals can only look and wonder.

Allow me to say, sir, if conservative dentistry would be worthy the name, it must not only cover the idea of preserving the teeth, but it must embrace all the contingent influences that may affect our patient's health in accomplishing the object.

If I am led by my zeal for my profession, or a more unworthy object, (the pay,) to fill a tooth, while I am unable to restore the surrounding parts to health, and stop that sluggish flow of pus that tells me disease and death are there, I can but think my desire to be *professional* has triumphed over my desire to be a benefactor.

CLINTON, MASS.

ON THE ARTICULATION AND ARRANGEMENT OF ARTIFICIAL TEETH.

BY W. H. TRUEMAN, D. D. S.

A Paper read before the Pennsylvania Association of Dental Surgeons.

(CONCLUDED.)

It is a hard matter to call attention to special cases, for so great is the variety of condition met with here, nearly all might with propriety be designated by that name, though a few unusually difficult cases may not be unworthy of notice. The first claiming attention, is that condition sometimes met with where the front teeth strike directly upon their cutting edges. Where this has been the case, it is nearly always best to make the artificial ones bite the same way,—not always an easy task, on account of the rough, irregular outline often presented, caused by the unequal wear of the teeth.

The chief difficulty in making teeth lap in these cases, is found: first, in the prominence of the lower jaw, which would require the upper teeth to be set out too much; and, secondly, the patient having become accustomed to the teeth closing in this manner, finds it difficult to make out with any other bite.

The objection to the front teeth meeting, are, first: the greater danger of displacement of the denture, the biting in front having a tendency to throw them down at the back, unless the suction is unusually strong, or the antagonism very carefully made; and secondly, the great strain upon the front teeth, makes them more liable to accident. Every case I have set this way has had the same trouble—the severe pressure in masticating causing fracture of the platina pins or tooth. You will, perhaps, have noticed that patients having this deformity, generally possess a very powerful masticating apparatus. This, brought to bear upon the solid, unyielding teeth, soon compels them to give way. Where this force is received by teeth set in the usual manner, there is a slight yielding of the straps or backings, which wards off the severest strain; but where teeth are constantly brought into severe and direct contact, and the blow is received *solidly*, without any spring whatever, accidents must be of frequent occurrence.

I have endeavored to relieve the teeth thus situated, with some, though not *entire* success, by making the backings extra heavy, and a trifle longer than the teeth, so that they may bear a little of the burden. These are, however, soon worn down, and cease to give the teeth any great degree of assistance. In vulcanite work this does not exist to the same degree; the rubber fitting the base of the teeth more accurately, giving them greater support, and the rubber being less compact, acts as a cushion, which destroys the solidity teeth set on metal possess; and the teeth, being in sections, support each other, and give greater power of resistance, but do not give entire security. Even the natural teeth are unable to perfectly hold their ground against it, and from this cause are frequently thrown out of place or dislodged, or become so much diseased as to require removal. It should be avoided whenever possible; but it is far better to have a useful piece of work, even with these disadvantages, than to construct one according to rule, useless alike to patient and operator. An experienced judgment is the only safe guide in these cases.

Another condition of affairs frequently met with, and often giving much trouble, is where a few lower front teeth alone remain. The only way to manage these where the patient is unwilling to have lower back teeth, is to make steps on which the lower teeth may strike. Sometimes a bicuspid may be used in the place of the canine, to accomplish this. Vulcanite seems to be especially adapted to some of these cases, from the ease with which steps can be built out, and the patient by this means is enabled to use them in eating, with satisfaction. Where the lower back teeth are also to be supplied, it may be of advantage to make them first, and after they are finished, and all right, proceed to make the upper; by this means greater accuracy can be attained, though a little more labor is required. These cases are often the most difficult ones we have to arrange; the remaining lower teeth being occasionally very much elongated. Where this is the case, the upper teeth should be made as short as possible, to avoid a long *lap*, which is always a disadvantage, and very much restricts the motion of the lower jaw. While speaking of partial lower cases, where the front teeth remain, I desire to call attention to the great importance of making the plate inside fit closely to the gum and teeth, especially in front, and the plate should be well beveled or rounded off, so as to be as much out of the way of the tongue as possible. On this ground, I do not consider vulcanite as admissible in these cases.

There is considerable strain on this part, to resist which it must be strong; and to give rubber requisite strength, it is made so thick, that in many cases (and I think it is not too much to say, a majority of cases,) it seriously interferes with speech and mastication. The tongue is constantly catching upon it, and raising it up. It is true, a great many wear them, and appear to make out very well; so they did with the old, out of date contrivances they so much resemble, carved from bone; yet who will not say a nicely made gold or silver plate of modern times is not far superior. If the dentist HAS the reputation of being *crabbed*, it is no excuse for his desiring to progress *crab-fashioned*. I have in some cases made a band of gold to take the place of vulcanite in front, but do not approve of it. The more I see of these cases but strengthens the impression that rubber is not suitable for partial lower cases; and the same remark would apply in a measure to partial upper cases also; but we must never forget that circumstances *very often* "alter cases," and that *routine* is never more out of place than in dentistry. And now, in conclusion, I desire to say a few words in regard to the effect produced by the articulation and arrangement of the teeth upon speech, for the teeth play an important part in giving intelligible expression to the voice of man; and their usefulness is often impaired in the hands of an ignorant or careless operator. The dentist who respects his reputation, must be very careful not to mar the speech of his patient. Some (especially superannuated *young ladies,*) are very particular upon this point. Although it is almost impossible to insert even a few teeth without making some alteration, if properly done, it will only restore the defect caused by their loss. The first consideration here is to allow plenty of room for the *tongue*, and carefully avoid having any projection upon which it may catch. I have frequently noticed that upper vulcanite cases are made too thick inside of the centrals, just at the spot the tongue strikes the roof of the mouth in forming certain sounds, and a slight but very noticeable "*hesitancy*" is produced, made more apparent by the patient trying to avoid it. This is often done to make the case strong, for it is here accidents are more liable to occur. I am careful to make the plate *thin* at this point, and guard against cracks by passing a thick iron wire all round the case, just under the pins, hooking the ends under one of the pins of each molar block, and keeping it in place by a ligature around a pin in front. It has so far answered every purpose. Being completely imbedded in vulcanite, it does not show, and is not practically affected by vulcanizing. It often requires a little care to keep it out of sight, especially if the teeth are short.

Wide spaces between the teeth, or any opening between the cutting edges of the incisors, when the jaws are closed, will often cause a lisping or hissing sound, annoying alike to speaker and listener. This space is often found between the canine and first bicuspid of the lower, and may be caused by the bicuspids being set in too far, or a want of proper proportion in the relative widths of the upper and the lower teeth, by which the point of the upper canine, designed to cover this place, is brought too far front. It sometimes requires considerable patience and ingenuity to avoid this defect. It should never be allowed to pass; man's *chatter-box* must be made to close *tightly*, if the notes which emanate from it retain their purity.

Those whose avocation depends upon the voice, demand the greatest care and consideration on our part in this particular. Although an ill-constructed or badly-fitting operation may not entirely unfit them for the discharge of their duties, it is calculated to produce a modification of the speech, not only perceptible to the audience, but the recognition of that fact acting upon the mind of the person might cause considerable embarrassment.

I recollect once listening to a gentleman speaking upon a very solemn subject, who kept his audience in a constant titter by his unsuccessful attempts to keep an ill-fitting denture where it belonged.

Perhaps most of you have heard the story of a certain divine whose eloquence was on one occasion *cut short* by his artificial teeth slipping out, and hanging by the springs, for some moments, upon his tongue, in full view of the congregation. No doubt their unopportune appearance made a far more lasting impression upon his audience than the burning words of eloquence they so unceremoniously "*choked off*." And still later, we read of one of England's brightest statesmen being interrupted in the midst of an eloquent oration by his unruly teeth attempting to *take the floor*. These *practical jokes* teach us the necessity of securing, first, a good fit as the foundation to a well-arranged, perfectly articulated and successful denture.

I am well aware, gentlemen, that all has not been said upon this important subject that can be. I have only endeavored to give the prominent points, and those upon which experience allowed me to speak with more confidence.

It is said that light is conveyed to our world by the rapid vibration of infinitely small particles of the invisible ether; in like manner must we depend upon these little ideas,—atoms of experimental knowledge, put in active exercise, for the illumination of our minds.

PHILADELPHIA, PA.

IGNORANCE OF PHYSICIANS IN RELATION TO DENTISTRY.

BY B. WOOD, M. D., D. D. S.

In the late "Transactions of the New York State Medical Society," one of the contributors, treating of "The Gingival Margin as a Diagnostic Sign," writes as follows:

"This margin shows different appearances in different cases. In some it is a mere red line along the edges of the teeth; in others, it appears red and congested, fully one-eighth of an inch, and even the whole depth of the gums; again, it appears red and spongy, and secretes a pus-like fluid; in other cases the gums appear spongy, and chiseled away from the edges of the teeth, showing the *roots in a carious and filthy condition.* Dentists are in the habit of attributing all of those changes to the accumulation of tartar around the roots and along the edges of the teeth, which they dig and scrape off to the great injury of their patients."

Here, the learned doctor describes very correctly the "diagnostic signs" of salivary calculus, which, he says, dentists "*dig and scrape off to the great injury of their patients.*" Possibly he would prefer resorting to "constitutional treatment," *until* the "tartar" and the signs of it be removed—together with the patient! His phraseology admits the *presence of tartar*, the removal of which, by the dentist, he seems to deprecate so much; and whether he intended to admit it or not, the *appearance*, as described by him—"the roots in a carious and filthy condition"—would indicate its presence; or, if the roots *were* really "carious," as well as "filthy," a school boy, who knows enough to wash his face, ought to know that to "dig and scrape off" the caries and filth, would not be "to the great injury of the patient." Truly, the "schoolmaster ought to be abroad" in the *New York State Medical Society.*

Of course, no DENTIST will undertake to remove tartar where he does not find it, (and he will know it from caries;) but where it does exist, whether as a cause or consequence of disease, its removal will be to the benefit, and not the injury of the patient.

Some years ago, I heard a very eminent surgeon, who was also an author and a professor, state to his medical class that the teeth are "devoid of all sensibility," because without nerves, &c. The same professor used to caution the students "to be sure, before extracting a tooth, to cut the *ligamentum dentis*, which," said he, "I insist exists." He related that its discoverer "first detected it, *by means of the microscope*, in the maxilla of a hog, and afterwards demonstrated it in the human subject."

About the same time another professor, editor of a medical journal, and a "most learned physician," called upon me to go in consultation upon an "extraordinary case." "A little boy, son of the Rev. ———, a most estimable man, had a frightful appearance upon the superior maxilla; difficult of diagnosis; the bone denuded some distance above the gingival margin; integument sloughing away; retracted and glairy at the edges; child otherwise afflicted—fever sore; some apprehension of the disease manifesting itself in the oral cavity; the father in great distress about it, almost distracted; had great prejudices and dread in regard to dentists, but had finally given his consent—a very extraordinary and distressing case, &c." I rode out with him, nerving myself to *appear calm*, but quaking "in my boots," lest I should be unable to summon up enough surgical and pathological knowledge to aid in diagnosing the case. Upon examining the "oral cavity," I found protruding above the "gingival margin," the *denuded roots of a decayed temporary tooth*, such as we so frequently see in the case of children. This was the sole cause of alarm.

Speaking, not long since, to a physician of unusual intelligence in regard to general matters of the likelihood of a tooth, in which the pulp was destroyed, aching from periosteal inflammation, or abscess, he remarked: "I thought a tooth never ached after the nerve was destroyed." Is it a wonder that so many in the community, with no better instructors, should entertain the same idea?

Being called upon, by a young gentleman, to examine a tooth which had begun to trouble him, I found the pulp dead, with incipient inflammation, and tendency to alveolar abscess. As he was undecided what to have done, I briefly stated the nature of the case, and making an application of creosote, dismissed him until the next morning, when we would either extract the tooth, or treat it, as seemed best, or as he felt disposed, telling him if we undertook treatment, it might be necessary for him to take some cathartic, &c. I saw no more of him for three or four weeks, when, meeting in the street, I asked how he got along with his tooth. He replied that he had gotten over it, though after a hard time; "but," said he, with an expression of newly acquired knowledge, "it was not the *tooth*, it was *neuralgia*—my face all swelled up, and I was sick with it for two weeks." Doubtless he had derived his information from some "*most* learned" medical attendant. They are *all*-most learned! "Neuralgia" has become a very fashionable complaint in place of "toothache," which is seldom mentioned in polite circles. And from the manner in which this "neuralgia" is so commonly spoken of, as though it were out of the dentist's province, and belonged properly to that of the physician, we may infer a pretty wide-spread ignorance among physicians on the subject; for, coming in contact with almost every family, if well informed themselves, they could not fail to enlighten the community. It is not improbable that some who have learned that cathartics, morphine and time will afford temporary relief, would rather undertake the "constitutional treatment" of the case, during a couple of weeks' suffering, than to refer it to the more speedy and effectual aid of the dentist; but we cannot suspect the great body of our medical friends to be guilty of such dishonest and cruel cupidity.

The more intelligent class of physicians are becoming conscious of deficiency in what becomes them to know in our specialty, if their pride would allow them to admit it. In this pride they are too frequently culpable, prompting them, when their patients require dental services, to summon the more ignorant class of manipulators, whom they can command as mere instruments, rather than run the risk of self-exposure by coming in counsel with qualified dentists.

We might say much more on this subject, and enforce our remarks by ample illustration, but let these few "broad hints" suffice for the present.

ALBANY, N. Y.

IRRITATED OR EXPOSED PULPS.

BY C. E. FRANCIS, D. D. S.

Every operative dentist, in the course of his practice, meets with many cases where it becomes necessary to decide upon either the salvation or death of the pulp of the tooth upon which he is operating. That a tooth, containing a healthy living pulp, is a far safer and more valuable organ than one deprived of this precious germ of nutrition, is a fact that no one will dispute, and every care and precaution should be exercised to avoid disturbing it; but, despite all care, it sometimes does get disturbed, and demands our attention.

A pulp may become irritated before actually "exposed," which, if long continued, is succeeded by inflammation, congestion and death. Such is frequently the case where the decay penetrates nearly to the pulp chamber, leaving but a thin layer of semi-cartilaginous structure, which affords but a poor protection against thermal action. If cases of this kind are properly treated in due season, or before the congestive stage is reached, the pulps may usually be restored to health. The following treatment is suggested: Remove all the decayed or decalcified dentine possible, *without* penetrating the pulp cavity; better, by all means, leave a layer of decalcified dentine in the cavity than to actually expose the pulp. Syringe with warm water, and dry the cavity with small pieces of the softest spunk. Bathe the entire cavity with chloroform, and apply a paste of pure creosote with tannic acid. Cover with a cap of metal, cork, or piece of quill, leaving a small open space between the cap and pulp. Seal the cavity temporarily with gutta-percha, wax, os artificiel, or a paste of calcined plaster. The two last named are usually preferable, being poor conductors of heat, and allowing no pressure from without. A single application is usually sufficient to allay the irritation, and may remain in the cavity several days, or even weeks.

When the pulp is restored to healthy action, and the tooth again feels comfortable, the filling may be removed, and the preparation of the cavity completed. A layer of paper, moistened with creosote, may be placed in the vicinity of the pulp, and covered with a nicely-fitted gold cap; over this can be introduced a gold plug; or, if too sensitive, a temporary filling of "Hill's Stopping," or a paste of oxy-chlor. of zinc. It can thus remain unmolested for a year or more, until the pulp deposits a sufficient quantity of secondary dentine for its better protection. In the writer's mouth is an inferior molar, which caused intense pain at intervals for many days, but finally yielded to the treatment already suggested, and is now a living, healthy tooth.

When the pulp has become actually "exposed," the difficulty of preserving its vitality is increased. If, in the process of preparing the cavity of a healthy tooth, the pulp chamber is accidentally invaded, lightly place a single layer of bibulous paper, saturated with creosote, over the exposed portion, then cap and fill, as has already been suggested. This treatment has saved many pulps, and, when sufficient care is exercised, may prove successful in ordinary cases. Suffer no pressure against the pulp, and use creosote sufficient to allay all irritation or pain. If congestion has already taken place, remove the pulp as soon as possible, thus avoiding the danger of peridontitis, or discoloration of the crown. Should the pulp be too sensitive to permit its immediate removal, apply a paste composed of two parts, by weight, of tannic, with one of arsenious acid, moistened with creosote. This may remain in the tooth several days, if necessary, and will devitalize the pulp without causing pain. After all such operations, it is advisable to allow a sufficient time to intervene before the final plug is introduced, to insure a successful result. Too great a hurry to complete or dispatch such cases is likely to cause failures.

New York, June, 1867.

DIPLOMAS.

For the last few months the croaking members of the "dental fraternity" have been greatly exercised on account of the independent position taken by the Pennsylvania College in granting diplomas to advanced members of the profession, who, in the aspiring season of their youth, sought to obtain a knowledge of the duties and requirements of their chosen profession by serving a lengthy term of pupilage under the practical training of experienced dental operators, instead of seeking the meagre "advantages" of the then almost unheard of "college," whose early teachings have since been universally declared obsolete and erroneous. Now, wherefore all this croaking, and who are the croakers? They seem to be divided into two classes, with as many reasons for their croaking. One class are those who received their diplomas when diplomas were very easily obtained, and most of these conferred merely "honorary degrees," requiring no attendance whatever to the lectures, nor a shadow of an examination before a college faculty, as may be seen by referring to a list of their names, &c., published in the July number of the "New York Dental Recorder," for 1855, which list, by the way, is worth the trouble of looking over just now.

The other class comprises those who possess a covetous nature; vexed because they have never been fortunate enough to obtain "honorary degrees," and aware of their inability to successfully pass the ordeal requisite to procure a proper college certificate. *Some* of the latter class, however, *seem* to imagine themselves competent to occupy positions as professors, and to dictate in general terms as to qualifications requisite for obtaining the coveted "parchment." It is not to be supposed that every man who affixes a string of titulary letters to his name, possesses them legitimately. Men have been known to sport the appendages of "M. D.," or "D. D. S.," or both, who never received a diploma of any kind.

The "croakers" *appear* very anxious to see their profession "elevated," but in their own peculiar way. So long as they can ride on the "front seats," or stand poised upon the shoulders of their brothers, they are ready to cry "*advance;*" but if other lights appear a little more luminous than their own, they "croak." Oh, consistency! INDEX.

QUARTERLY NOTES.

"Enlightening and directing public opinion in regard to the duties, responsibilities and requirements of the dental profession," is so important a duty that it should be entrusted only to such as exhibit special fitness for its performance. "It is a source of continual regret," therefore, to find such a task lightly entered upon by illiterate declaimers, assuming the character of "well-qualified dentists;" but really as little fitted to judge others as to form a proper estimate of their own littleness. What wonder that "men of eminence in literature and arts and sciences," should sometimes fall into the hands of incompetent operators, when so many who set up as teachers and leaders in "the profession" are chronic blunderers. Teaching the public is well; teaching those who are to serve the public is better; but above all the teachers should look well to themselves.

Every one must be pleased at the very sensible recommendations of the Committee of the American Dental Association in regard to accepting students. Not only are the suggestions good in themselves, but the manner in which they are offered is an additional excellence. Mark, in contrast, the report of the proceedings of the so-called Association of Colleges. The gist of all that this meeting accomplished was the passage of a gratuitous resolution, to the effect that it could not approve of conferring the degree of D. D. S. upon any persons, except students who had regularly attended lectures, or gentlemen who had made valuable contributions to science. We say gratuitous, because we have as yet been unable to find any body who asked for its approval, or is moved at its censure. While it is very "irregular" to grant diplomas to any who have not entered in by the straight gate, the doors are thrown wide to any needy brother who can be found to accept a professorship; he being sole judge of his own qualifications. As it would not quite do to acknowledge that there was no principle at all in their action, they attach all their self-consequence to sticking to a very little principal, in hope of making it return very great interest. The Baltimore College very innocently declares it has conferred the honorary degree only twice within the last ten years; but those who have good memories count up one hundred and fifty antecedent. The Ohio College has granted its sheep-skins to all manner of wolves, who would subscribe for its clothing. What the Philadelphia College has done, may be unknown; but "there is nothing hid that shall not be revealed." The New York institution, after announcing, in terms of ridiculous pomposity, that three years of pupilage would be necessary to the attainment of its *honors*, graduated nine students at its first session. Nevertheless, dental education has advanced and will advance—colleges or no colleges. Other resolves in which this syndicate unite, are in various degrees noticeable for betraying a lack of that "good English education" which the Committee above named considers essential for *students*. Strange, that among "the various Faculties who, in the *person* of their various *official* officers, signed the Constitution," none could be found possessed of the simple faculty of writing correctly.

Prominent in the new crusade is a writer who, in lieu of other commendation, praises his own work as "a calm and dispassionate discussion," in which "everything of a personal nature is studiously avoided." Here is a sample by which to judge: "It is difficult to conceive what advantage can accrue to the recipients of the diplomas, some of whom, perhaps, in point of general intelligence, and as practitioners, occupy higher positions in the estimation of the profession and the community than those whose endorsement they have sought. Under such circumstances, it must be quite evident that the diplomas would be of as little value as the parchment on which they are written."*

Query, whether the addition of another name, which shall be nameless, would, in the writer's estimation, add to the value of the documents? His opening paragraph admits the whole question to be one of policy; and many wonder why that which was a commendable action of an institution in his own case, should be an injury to the community in that of others equally worthy. It all comes down to the question, Whose ox is gored? The suggestion that "such a course on the part of any one" of the Medical Colleges "would exclude the institution from representation in the American Medical Association," is a flourish which indicates very plainly what the author would do, if he could. The story of the frog, who burst in the effort to distend himself to the size of the ox, is apropos of the whole of this windy performance.

The Professional Tourist, who has such a convenient fashion of seeing and hearing only what serves his purpose, and of making partial statements which have all the effects of mis-statements, has generalized himself into a perfect muddle of apprehension over the diploma subject. We would direct the attention of this gentleman, whose name is so pleasantly suggestive of peaceful flocks and herds, to the thanklessness of the task of "pulling other people's chestnuts out of the fire," which, besides being unpleasant and disagreeable, is also rather contemptible business for a professional traveler. His article should, however, receive lenient criticism, as we are often reminded in it that in New York, Philadelphia and Baltimore there were "fine entertainments," "luxurious viands," "bountiful" repasts, and "grand suppers," at which our Tourist's "inner man was satisfied." The champagne at the "St. James' Hotel" must be taken as the cause of his forgetting to say that the dinner given by the dentists of New York was to the American Dental Convention, and not, as he leaves it to be inferred, to the Dental College of that city.

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* Dental Cosmos, Vol. viii., page 516.

We congratulate the profession upon the establishment of an order for the decoration of "distinguished contributors" to "dental art and mechanism." F. C. D. is the style of the new enigma by which to conquer admiration and awaken wonder. What it means is questionable; we had it, on good authority, that it would designate First Class Dentists from the common herd of D. D. S.'s; but its conferrence upon Messrs. Owen and Tomes set us again to wondering. A friend, who should be posted, tells us that it signifies admittance to the Fellowship of the Colleges of Dentistry. But suppose the gentlemen named should not care to be hale-fellows with such company? we inquire. "O, no matter about that," is the reply, "that is not the point. Owens and Tomes don't care anything about it, of course; it is we who want their names to help us along. It's only a little game of ours, do you see?"

Nothing daunted by other failures, New England promises, ere long, to have a Dental College of her own, to relieve the crowded halls of older schools. Harvard and Yale, we are assured, outbid each other for the sponsorship. A monthly bulletin will chronicle the growth of the newborn, and dental sages of the East will guide its first dentition. We wish the babe a plenteous flow of proper aliment, though the family so rapidly increases that many hungry mouths must share it.

There again appears among our journals one which has slept so long, we had thought it dead and buried. The awakening, so far as we may judge, is not to a higher life. The frequent allusions to "Secession" are anything but sensible. To our certain knowledge, some of the chief contributors were greatly exercised last summer at the entrance of political personages into a scientific assembly; yet they show a great facility now for sprinkling political slang throughout their pages, and vent their spleen by printing proper names without capital letters; such warfare is only worthy of women and children. There is a great attempt in this journal to appear learned, the result being frequently unsuccessful. Its typography is by no means perfect, yet in this respect it is far in advance of some of its neighbors, which present a legionary body of errors. Two articles appear in one issue on Trichiniasis; while only one, and that selected, is of any practical utility to the large class for whom the journal is intended. "Dentistry as a Fine Art," is a labored effort, by an individual who is unable to discriminate between notoriety and reputation. We have heard this twaddle before; the writer's stock of art being so very limited that it must needs be repeated again and again, on every possible occasion. The summing up of this pretentious matter is, that "all operations on the natural teeth, as artistic performances, are in rank below that of the substitution of artificial ones;" which, were it true, could not be accepted as an apology for the lack of the sneered-at "skillful manipulation" which enables the conscientious operator to preserve his patient's teeth, instead of sacrificing them to his low ideas of art.

The Dental Associations are a rich source, not only of instruction, but ofttimes of entertainment. At a recent gathering, one of the brethren was struck at his first sight of "such nice joints," and wanted to know "if they were made with an ordinary grinder." A "gas generator" was exhibited, the most wonderful affair ever heard of, and then the cheapness of the hing, that was what settled the business; why it was cheap at any price. Also, a combined lip and cheek holder, warranted to keep open the jaws of Leviathian, with a hook to put in his nose, if necessary, leaving the operator free to get "a fair chance" at his victim, while the victim has no chance at all. This, too, going cheap; no profit in the manufacture; all done for love of "the profession." One professor was so tickled at the performance that he declared "it was worth all the talk he had heard at Dental Associations for years;" which is not very great praise after all. Another, of the same band of brothers, was very differently affected; "it made him sick" to think he had not seen it years ago, before he abandoned "the profession." Be comforted, brother; no good comes of crying over spilt milk. Friend Boggs next tells how Dr. Noggs invented an instrument that had "more brains in it than anything the profession had in the way of pluggers." The only drawback is, that "the brain" occasionally gets addled, and then the instrument goes off at half-cock. An instructive discourse ensues on "dead blows" *versus* "live blows." Specialties now come up, such as "laughing gas exhibitions," in which one of the prominent members has a vital interest. A certain brother complains that if he sends a turkey to a professional friend, he is very apt to get a crow in return; which must be very annoying, especially about dinner time, and ought to end in stopping the supply of turkeys. Yet another, "feels safe, in saying, that if he could get higher prices, he would make more money than he does now, and might do better work;" both propositions are doubtless eminently correct. An unparalleled case in practice we must not overlook, where "the *second molar nerve* was destroyed, *treated*, *filled with amalgam*, and three years elapsed before pain." The "official officers" of the Association of Colleges should secure this unique specimen for their museum. One gentleman uses "small *pludgets* of cotton" for filling "fangs;" a second settles *him* by saying he "objects to cotton, because of *quacks*." One, strong in the faith, "did not know that he ever failed;" but his patients are much troubled with "periostitis." Alas, for us, an end must come to the best things; and so we leave this Association, not without hope that, at its next display, "we may be there to see." UNKNOWN.

DENTAL EDUCATION.

BY T. L. BUCKINGHAM, D. D. S.

It must now be generally known by the dental profession, for it has been published in all the dental journals, that several meetings of the faculties of the various dental colleges have taken place, and an association has been formed under the name of the Association of the Colleges of Dentistry, and that at the meeting held in Philadelphia, March 20, 1867, the Pennsylvania College withdrew from the Association. The cause for this withdrawal, which has been so prominently held up by the journals, has not been fully or fairly explained by any of them. The resolution, as published, does not convey to the reader the cause of the trouble, and the editorials have only spoken of it as an act of the gravest importance; it is therefore necessary that we should give some good and substantial reasons for our action.

To get at the source of the troubles, and not keep the reader in suspense, it is only necessary to state that the Pennsylvania College adopted a rule some time ago to allow dentists who have been in practice since 1852, to come forward and be examined, without requiring them to attend lectures, and if found qualified, they were recommended to the trustees to receive the diploma of the college. Several dentists availed themselves of this privilege in March, 1866, and a much larger number at the close of the session in 1867. It was to prevent, or at least to censure this course, that the resolution was adopted.

Our faculty does not claim to be the discoverers of this mode of graduating dentists, nor have they taken a patent on it to prevent others from doing the same. But they do think if it had been carried out as it was intended by the first college, we would now have all the reputable dentists connected with one or the other of the colleges.

Let us now examine the rules adopted and the course recommended by the dental associations and colleges that have been established, and see if they do not endorse the course we have pursued.

The American Society of Dental Surgeons, the first society of dentists that was formed, held their first meeting in New York city in August, 1840. They stated in the first article of their Constitution, that "The objects of this society are to promote union and harmony among all respectable and well-informed dental surgeons, to advance the science by free communication and interchange of sentiments, either written or verbal, between members of the society, both in this and other countries; in fine, to give character and respectability to the profession, by establishing a line of distinction between the truly meritorious and skillful, and such as riot in the ill-gotten fruits of unblushing impudence and empiricism."

All the societies that have been established since that time, and they are now numerous, have incorporated the same, in some form, in their rules and regulations, and within the last few years, numerous applications have been made to the different State Legislatures to pass a law appointing a board of examiners to sit in judgment, and draw this line of distinction between those who are qualified and those who are not. It may be seen, from what has been stated, that an almost universal desire prevails among the well-informed dentists, that some line of distinction should be made between those two classes. Now, why have these societies not been able to make this line? First, because they have no standard to go by. It could not be expected that the members would all be equal to the best, and as the great majority of those composing these societies have received no regular course of instruction, they were at a loss to tell how much information others should have to enable them to become members; and hence, the qualifications in some of them became very low. And secondly, we think the societies should not establish this line, for they are formed for the mutual benefit of the members, and they are, in a measure, schools for teaching. One of the objects of the first society was the "free communication and interchange of sentiments," and this should be the object of all.

Another mode of distinguishing was adopted by the colleges, which was to grant honorary degrees to those who had acquired a reputation by some discovery, contribution to science, or even a reputable practice. This course was pursued for a number of years by the first dental college, and all the others have availed themselves of the privilege. But the propriety of the course has always been questioned. Honorary degrees are supposed to be conferred gratuitously, and upon those who have distinguished themselves by some contribution to the science, and they are considered a mark of distinction above the ordinary degree, and as they are conferred without an examination, it is only in cases where the ability of the party is personally known to the faculty, that they should be given, unless it is to those who are publicly known to the profession. But had the names of the recipients of the honors been published at the time, the errors would soon have been corrected; for the better class of them would have pointed out, with such force to the faculty, the injury they were doing by conferring the degree upon inferior men, as to prevent them from continuing the practice, except in cases where they knew the candidate.

But while the profession, generally, does not approve of conferring honorary degrees upon those who have distinguished themselves only in their practice, still the members express a desire that some mode may be devised to separate the good from the bad, and many of them look to the colleges to offer such a plan, and as they are the only institutions that give a regular course of instruction, and have a standard for qualification, and also are the only ones that can legally confer a degree, it appears to us that they are the only source from which the line of distinction should spring.

Having views similar to those stated, and prompted by several articles that have appeared in the Dental Times, the faculty of the Pennsylvania College, in January, 1866, adopted a rule, offering to examine and graduate any good, respectable dentists who have been in practice since 1852, upon the following conditions:

> "Dentists who have been in continued practice since 1852, are eligible to be candidates for graduation without attendance on lectures. The candidate for graduation must present satisfactory evidence of his having been in practice for the allotted time, also of his good standing in the profession. He must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must present specimens of his workmanship. He must undergo a satisfactory examination by the faculty, on each of the branches taught by them: when, if qualified, he shall be recommended to the Board of Trustees, and if approved, shall receive the degree of Doctor of Dental Surgery. Of this class of graduates, the matriculation and diploma fees only are required."

Why objections should be offered to this course, we are at a loss to understand, unless it is from selfish motives. That a class of dentists, who are recognized as the foremost in our profession, in all our conventions and societies, as well as in our professional journals, and have established a reputation by a practice of over fifteen years, should be debarred the honor of having the degree of Doctor of Dental Surgery conferred upon them, merely because they have not attended lectures, appears to us to be carrying the restrictions too far.

As we have now given, in a very brief manner, some of the reasons for adopting the rule referred to, it may be proper to review some of the communications that have been published in opposition to it. The *Dental Register*, in a short notice, by the editor, merely says: "We are sorry that the brethren of the Pennsylvania College thought best to go out in the cold; we hope they will reconsider the matter and come along with us, for we will do them good." Now this is kind in the author. We can only say, it is better sometimes that things should cool off; it may be too hot as well as too cold for organic bodies; even steam boilers should have the fire built cautiously under them at first, to test the amount of pressure they will stand.

The editor of the *American Journal of Dental Science* gives a more extensive notice, which we will copy for the benefit of our readers:

> "We wish to call the attention of our readers especially to the proceedings of the Association of Dental Colleges—in our judgment the most important subject in dentistry that can engage the mind of the reader or employ the pen of the journalist. We confess to a feeling of disappointment that the editor of so widely circulated a journal as the *Cosmos*, should have passed over, without notice, certain minutes in those proceedings, which record an action that must have a decided influence upon dental education."

Now this looks to us very much like wanting to use some other cat's paws to pull the chestnuts out of the fire. Why did not the editor himself notice the minutes he refers to? He had as long a time, and quite as much ability as the other:

> "That one of the colleges represented in that association—and one of the most influential—should have refused to co-operate with the others in their effort to improve the system of education: still further, that it should have determined to pursue a course which the others regard injurious to the cause of collegiate education—is a matter of gravest importance. It challenges the censure or approval of the profession, and is a subject which must necessarily be discussed. Our pages will be open to any communications, on either side of the question, which shall be written with fairness and courtesy. As editors, we cannot permit any exclusion from our journal of temperate discussion of a subject so important as dental education. But as friends of education, and professors in a dental college, we think it our duty to record our disapproval of the *secession* of the Pennsylvania College."

As we understand the first sentence in the above paragraph, it conveys a wrong impression, "And that one of the most influential should have refused to co-operate with the others in their effort to improve the system of education." Now we did not refuse to co-operate with them in the advancement of dental education, as the proceedings of the Association, published by themselves, will show; but accepted all the resolutions that were adopted, and would have lived faithfully up to them, except the eighth, which has no bearing whatever upon dental education—it merely disapproves of a rule which we had adopted. We admit that some of the regulations we did not vote for, neither did all the other colleges vote for them all; still, while we remained in the Association, we were bound to submit to the will of the majority.

The editors very generously offer to open their journal to any communications written with fairness and courtesy on the subject. This is all we ask; give us some good and substantial arguments against the course we are pursuing, and we will abandon it; but a mere protest, without some argument to sustain it, will not change our course.

The next article we will notice is much longer, and in the form of an original communication, by one of the editors of the *Cosmos*. Now everybody knows that the *Cosmos* is the dental world, and that the editor, like Atlas, sustains the world on his shoulders, and when he takes up his pen to write on dental education, the little boys must get out of the way, for he is about to show the elephant.

He commences with a grand flourish about the origin and growth of dental colleges, and to embellish his article, quotes from a distinguished writer a paragraph on the rise and development of some of the arts, *i. e.* from the first hollow trunk of an oak, to the mighty ship of war, and the sand which was first melted with crude ashes, to the perfection to which glass is now brought. We can only say, in commenting on this, that if dental colleges are as slow in development as these arts have been, the older portion of the present generation of dentists will not see them brought to perfection. But we do not find fault with the quotations, they are here as they are frequently in our journals, the best part of the matter, although it is sometimes difficult to apply them to the subject under consideration.

In the next paragraph, it is stated that there were one hundred and eight graduates from dental colleges the past session, and in a foot-note, he says: "This is exclusive of the honorary and other degrees, conferred by some of the institutions."

Then it appears from this, that there were some honorary degrees conferred. We may have occasion to refer again to this before we close our article. The "other degrees," I suppose, refer to us. Passing down the same paragraph, we come to where the writer reaches the main question; viz.: Can a dentist acquire sufficient knowledge to enable him to graduate without attending lectures? "That a general knowledge of these sciences may be acquired by persons of studious habits, outside of colleges, with aid of books, is beyond a question of doubt true. Persons of studious habits, however, are rather in the minority than in the majority, not only in the world at large, but also in the dental profession. A general knowledge of anatomy, physiology, chemistry, and the principles and practice of medicine and surgery, such as that which every well educated gentleman possesses, is not sufficient for a practitioner of dentistry, for it is quite as indispensable that he should be as thoroughly acquainted with these sciences as the medical man." In answer to the above, we have but to republish an extract from an article in Vol. VII. page 315, of the *Cosmos*, by the same author: "That knowledge may be acquired more readily and easily in good schools, with able and competent teachers as *aids* and *guides* to the *student*, is undeniable, but that it *can be secured* outside of them by minds possessing an indomitable will and concentration of purpose, with a greater expenditure of time, patience, and money, is equally true." (The italics are in the original.)

We might close our communication by publishing these two articles side by side, but space will not permit us to do so. We can only make a few extracts from them, and refer the reader to the original articles.

But to continue the article now under consideration; the writer, after continuing for some time in the same strain as we have quoted, says: "Convictions such as these, and the fact of always having opposed the conferring of degrees upon any others than those who have attended lectures and passed a satisfactory examination, with the exception of gentlemen who have distinguished themselves as contributors to science, prompted me at a recent meeting of the Association of the Colleges of Dentistry, to protest * * * against the practice of graduating candidates who may present themselves merely upon years of practice, and without attendance upon lectures." Now we would like to ask one or two questions here, and we suppose the gentleman can answer them without much trouble. Did he not recommend the only two candidates for the honorary degree that received it while he was in the Pennsylvania College? and has there not been three at least connected with the college he is now in, that use the title of D. D. S., who have not attended lectures? Does the mere act of becoming a teacher entitle a man to not only the regular, but the honorary degree?

"Regarding dental colleges as establishments for the education of the profession alone." These are nearly the same words that are used in the preamble to the resolution adopted by the Association. It reads: "Regarding the education of the profession as the primary and only object in the establishment of dental colleges," &c. We admit that it was the principal object in establishing dental colleges to teach those who are coming into the profession, but that it was the only object is not so clear. Why did the originators of the first college insert in their charter the following:

> *"And be it enacted, that the said professors shall have full power to confer on any student, who shall have attended all the lectures in said College for two terms, and all others who, after an examination by the professors, shall have been found worthy, the degree of Doctor of Dental Surgery."
>
> "And be it enacted, that the professors shall have power to confer the honorary degree of Doctor of Dental Surgery on any dentist who may have rendered service to the science, or distinguished himself in his profession."

All the other colleges have the privilege given them to confer the honorary degree, and it is left to them to judge who are entitled to receive it. Neither are they restricted in their course of instruction; in some cases it has been very short, *not over six weeks:* and all the colleges have made a certain period of practice equivalent to the first course of instruction. Now, if five or eight years are equivalent to the first course, is no length of time equal to two courses? But to continue the sentence which we divided, to comment on the first part of it:

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* Extracted from the Charter of the Baltimore College of Dental Surgery.

> "It is easy to understand that the motives prompting a faculty to adopt this course would be to secure the influence of such parties in support of the particular institution with which they would thus become identified; but it is difficult to conceive what advantage can accrue to the recipients of the diplomas, some of whom, perhaps, in point of general intelligence, and as practitioners, occupy higher positions in the estimation of the profession and the community than those whose endorsement they have sought. Under such circumstances, it must be quite evident that the diplomas would be of as little value as the parchment on which they are written."

We admit that the writer has given the proper explanation of the motive, which induced us to adopt this course. We do want the influence and support of all such parties as received these diplomas from us, and we want their advice also, and we expect them to watch us, and when we are wrong to tell us of it, and we want them to watch one another. We promise faithfully that we will let them know publicly who receives this degree; we will not mix them up with the other graduates, so that they cannot be distinguished; nor will we, in publishing the proceedings of our commencements, suppress their names, for we hope to graduate none that we are ashamed of; and for the benefits they are to receive, we can refer them to an article published in the present number of the TIMES. But we have what may be considered *by some* a more conclusive argument in the article from which we have copied so extensively:

> "The influence upon education is far more salutary when such men come forward and submit to an examination on the part of a capable and reliable faculty, who shall decide upon their right to possess a diploma, than when the so-called *honorary diplomas* are distributed *ad libitum* upon gentlemen who, however worthy as men and practitioners, have neither attended lectures, submitted to an examination, nor distinguished themselves in any way as contributors to the science and art of the profession."

One more extract from these articles, and we are done:

> "What is the exact character of the acknowledgment which the faculty of an institution makes when it proposes to graduate those who were engaged in practice, when the institution was established, by merely submitting to an examination? Virtually, that such candidates could learn as much, or more, *outside* of the institution than *in it*, and although such parties have tacitly demonstrated during the intervening years, an utter want of confidence in them, as *instructors*, by avoiding the lecture-rooms of the institution, the said faculty, with a magnanimity worthy of a better cause, are willing to give them as *examiners* an *endorsement* which they do not need."

Now, what impression does the writer want to convey by this paragraph? Does he intend to say that those who have graduated in this manner are not qualified equal to a student who has only been two years studying, and has had no real practice? (He must refer to those who have passed, for he cannot tell who will apply in future.) If this is a correct interpretation, he has contradicted himself in a sentence already quoted, or does the sentence convey the idea that they may know enough to graduate at our college, but not enough to pass any other? Oh! if they had only attended "upon lectures for a few months," they could then have come forward as candidates for graduation, and passed the ordeal with the highest honors.

Since writing the above, we have received the June number of the *American Journal of Dental Science*, in which we find an article from a correspondent who signs himself P. H. A. He does not give his own views upon our course, but he asks a friend to speak for him, and then opinions are given in such a manner as leave us in doubt whether he is in our favor or against us. When the correspondence assumes some definite form, we may take some notice of it.

We must close this article, which has now been extended much beyond what we intended when we commenced. But allow us first to refer to the action of the Association. We have been asked why we did not continue with them, as this resolution did not forbid, it only did not approve of our course. We answer that it was the understanding with all the members that the rules of the Association would be carried out in good faith. The resolution, as first introduced, did forbid, in positive terms, and was only modified into its present shape near the close of the discussion. The manner in which the subject was brought before the Association, the spirit of the discussion, and the comments that have been published since, all show that it was not the wish of the others for us to remain, unless we changed our course, and to stay, with this vote of censure resting upon us, would disgrace us, not only in our own estimation, but also in that of the profession at large.

How a representative from an institution that has recently granted *twelve or thirteen diplomas* to persons who had not attended lectures, nor undergone an examination, and had charged them the full price for the tickets, could sit under those discussions and vote for the resolution, is more than we can understand. Perhaps, as the names of the graduates had not been published, it was thought they would not be discovered, or probably they had repented, and intended to pursue a different course; but then it would have been as well to have made an open confession, and the Association could have taken them upon trial for a short time; and we understand another institution, which was fully represented, have granted several degrees that have not been made public, and it is reported that an Editor who has taken a very active part in this matter, has for some time been cognizant of these facts, and has not thought it proper to say anything about them.

So we must conclude that our great crime was not so much in the course we were pursuing, as in making that course public.

AMALGAM IN DENTAL PRACTICE.

BY DR. A. A. COOK.

(Read before the Massachusetts Dental Society, April, 1867.)

"Prove all things: hold fast that which is good."

This quotation is selected not so much as a text from which to sermonize, but rather as a motto, embodying a principle which is not to be disregarded by the Dental Profession. The principle of electicism lies at the foundation of all practical success in the various callings of life as well as in the learned professions. In all departments of human activity we are called upon to compare, to test, to prove, that in the end the false and the bad may be discarded, the good and the right embraced; and, if possible, the better, if not the best, secured. Ours is not the only profession that has had to grope its way along, feeling for truth, grasping at times shadows for substance, mistaking uncertainties for facts, asserting conjecture for science, and "a' that and a' that." Was it Hippocrates, or one of more modern date, that said, "the science of medicine was founded in conjecture and has been improved by murder." The saying smacks *a la* Holmes, who can say a smart thing though it be at the expense of his chosen profession. It is truthful, whoever uttered it. Galen never spoke wiser. Medical science, so called, is not to be undervalued, nor is the medical profession to be lightly esteemed. Self-respect, such is the connection between us, should hold us back from any undue reflection as to the deficiencies of the past or the mistakes of the present, as to the uncertainties of the science or the questionable practice of the profession. All that is meant is that conjecture, experiment, uncertainty and diversity of practice, as well as change of views and formulas, have not been confined to the dental profession. They who serve best the needs of diseased humanity are such as are properly called eclectic. This class grasp at the valuable and the useful in whatever school such remedies are found. They seek to prove all things that they may hold fast to the good. To be sure they will not abandon the tried for the doubtful. They will not resort to experiment till all known and usual resources fail them, and even then will hesitate as to what may seem of doubtful character. They seek to be guided by all the wisdom books can give, observation bestow, or experience furnish. And yet they are not so bigoted as to think that wisdom is confined to any one school of practice; that they are the people of all others, and that wisdom will die with them. Nay, the true man, the honest eclectic, exclaims—

"Seize the truth where'er 'tis found,
On christian or on heathen ground."

What has been considered good practice, in accordance with the most approved science at one time, or by some of the most distinguished of the dental profession, has at other times and by others been, or is now, perhaps, discarded as unscientific and unprofessional. All who have been long in practice can look back and see they have abandoned some things once deemed valuable, and, perchance, now practice and adopt what they once repudiated. All have come as the result of experience, or of observation, to change somewhat as to the means or modes of operations as they have come to have less or more confidence in some one particular mode. No two, perhaps, are perfectly agreed as to the best method of doing a given operation, or if agreed as to the means to be used, they differ as to the best mode of manipulation to accomplish the desired result, or in the skill each can put forth to accomplish such result. The absolute is not easily obtained. He who deservedly ranks high is sometimes conscious he might do better. His ideal and aspiration is for a perfection beyond his present efforts, or at least performance. Excelsior is the motto of such, which means, "doing well and going to do better." And this is the end contemplated by this, our Association, as by other similar dental societies.

Upon nothing has there been more conflict of opinion or sentiment among the profession than in regard to the use of amalgam. Extremes have been taken by writers of eminence, and the controversy runs all through our dental literature. Much has been said on both sides; it may be something remains to be said. One can hardly give a summary of the whole that has appeared in the compass of an essay of ordinary length. Some of the fragments may be gathered up that nothing be lost.

Three questions will mainly claim attention, though not consecutively or fully treated. What is the history of its use? What the present status of its use? What may be regarded as settled as to its use: if, indeed, anything is yet established?

Some ten years before I entered on the practice of dentistry, *i. e.*, as early as 1830, something of the kind was used in filling teeth. Who originated it, or the exact date of its first use are alike unknown, at least to the writer. It was an inferior article, perhaps, to that of modern date. Its use was mainly in the hands of traveling charlatans, who were able to drive a large business on a small capital, and make livings, if not fortunes, from unconscionable practice. It was used without discrimination to a great extent, and all sorts of teeth, or rather of cavities, from the incisors to the molars, from the size of a bird shot to that of a Minnie ball were filled with it. Its use was not usually with much skill or painstaking at the first, though I take it there were some conscientious and skillful that came to do the best that could be expected from the use of a new thing. Finding it in the hands of mountebanks and humbugs, to a great extent, the better class of dentists were wary of its use, and distrustful of its worth. Some denounced the vile stuff in toto as some do now.

It was called by such as got their living thereby as their chief stock in trade or practice, "*succedaneum*," or some other euphonious *adcaptandum* of mystic power. There was much of humbug to the *um* as then practiced. It took, and many were the victims of these professional practitioners. People do love to be humbugged. Judging from the blackened appearance of the fillings made of it, by far the larger part of the plug was mercury; or else the mixture was different as to the metals, or their proportions, from what now obtains. Cases of salivation were reported as having been from its use. The writer cannot vouch it was so, though there be witnesses ready to so attest. Perchance salivation in the given case or cases may have been from other cause or causes. Of this more anon.

When about commencing the practice of dentistry at Cabotville, now Chicopee, in 1840, I became acquainted with one N. P. Ames, a bachelor, who had the reputation of a first-class mechanic, as well as of being a man of intelligence and of moral worth. He had been sent to Europe by our government to gain some information in the workshops of the nations that might be of use in perfecting our national armament. While in London, as he related, he had his teeth filled with amalgam. The work was done by a Jew, and the job was an extensive and expensive one. Before he got to Paris, while crossing the channel, the plugs, if such the stuffing used can be called, had, from the superabundance of mercury, commenced to come out, and he swallowed some of the vile compound. He became salivated, as he said. Mrs. Sigourney was in Paris at the time, and became his nurse, at least in part. It was a bad case of salivation according to his account. I received his statement of the case as unquestionable at the time. Of course, I became cautious of the use of amalgam. When I used it, as I did sometimes in cases of a last resort to save a doubtful molar, I was careful to express all the mercury possible by hard squeezing. The case of Ames found its way into our literature of the times. The opponents of amalgam made much of it. A due regard to facts requires me to state that I came to have reason to suspect Ames was never salivated at all; that it is now my full conviction it was a case of syphilis, that all the symptoms were of a syphilitic type. It was so pronounced by French physicians at the time. His attendant at home so regarded the case, and so stated to Ames; and Ames inquired of the Doctor, "if the disease might not be from accident?" Amalgam had nothing to do with the death of Ames It has been said his death was downright murder. It may have been; but it was of a suicidal nature, and some other mercurial than that of amalgam caused it, and some Jewess rather than Jew had to do with it. Of course all arguments against the use of amalgam from the case of Ames have had no weight since I came to entertain the conviction I do, shared in as it was by Ames himself, and entertained as it is by his physician now living.

MILFORD, MASS.

(TO BE CONTINUED.)

Editorial.

THINGS WE TALK ABOUT.

Professional subjects to talk about are wanting neither in number or variety. The one which has, perhaps, attracted the most attention, and the greatest amount of discussion, has been the adoption of certain resolutions upon the subject of Dental Diplomas, by the self-styled Association of the Colleges of Dentistry, and the withdrawal therefrom of the Pennsylvania College of Dental Surgery. The action of the body has called forth numerous essays by different writers and editors, some of which we present to our readers, and to which we direct their careful consideration.

The attention of the friends and patrons of our College is called to the change in our Faculty, a distinct chair of Physiology and Hygiene having been instituted. To fill this position, the Trustees have selected Henry Hartshorne, M. D., Prof. of Hygiene in the University of Pennsylvania and Professor of Physiology and Hygiene in the Philadelphia High School, a gentlemen of enlarged and ripened experience as a teacher, writer and practitioner. The qualifications of Prof. H. are of so high an order that we doubt not that the additional chair will be found to be of decided advantage to our dental students.

The *American Journal of Dental Science*, third series, comes to hand after an interval of many years; it presents a creditable appearance, but its typography is much inferior to the former Journal, second series, published by Messrs. Lindsay & Blakiston. The leading article, by Prof. Austin, on Dental Progress, would be more appropriate for an address for a Dental College Commencement, did it not give evidence of unmistakable pedantry. The articles on Osmotic Action, Cardiac Neuralgia and Aluminum are worthy of careful perusal. The article by P. H. A., in June number, is a miserable attempt to furnish wit instead of logic or reason upon the subject considered. We confess to considerable surprise that such a *disloyal* article should be published in any respectable dental journal; that our readers may not think us unjust in this criticism we make the following quotation: "The Pennsylvania School has the same right to secede that South Carolina had under the old Constitution: but the College had, perhaps, less excuse or provocation than the State found in view of grievances past, present or prospective." There is much room for improvement in the style and tone of this modern "Rip Van Winkle," before it will meet the demands of the present age.

Many inquiries have been made for the transactions of the American Dental Association, which it was understood was to be issued soon after adjournment. The new Committee appointed made many promises which have not been performed. It is, indeed, surprising that so much time must be taken to get out this little work; we think the Association should make it imperative on the committee to promptly publish the transactions.

In several States we hear of movements on the part of dentists towards a modification of the laws, so as to allow none but graduates, or those duly examined by a Board of Examiners, to practice. An excellent article showing what had been done in Delaware was received too late for our last number.

A sprightly little dental journal, called the *Dental Annual*, edited and published by Drs. Roberts and Houghton, has just been received. From a hasty glance at its contents, we should judge it was designed for "popular" rather than "professional readers." This is a want in the community which we doubt not the *Annual* will partially supply.

The subject of plastic gold to replace foil for filling teeth has recently received considerable attention. The last article introduced bids fair to be productive of average results, unobtainable with any other material.

There is cause for congratulation at the present and prospective improvement in operative dentistry. We can congratulate students who propose prosecuting their medical or dental studies in Philadelphia, on the passage of an Act by the last Legislature of Pennsylvania, legalizing the dissection of the dead body for the study of anatomy. The effect of this Act, we are informed, has been to reduce the price of the cadaver from *twenty*, *thirty* and sometimes as high as *fifty* dollars, to *two* for students of anatomy. The passage of this law was principally obtained by the unwearied labors and efforts of Prof. W. S. Forbes, who first called the attention of the College of Physicians to its importance, and gained their co-operation. It was also mainly due to his judicious representations to the press and members of the last Legislature, that the barriers of ignorance, prejudice and superstition were overthrown, and the passage of the Act secured. The influence of this law will doubtless be felt by all our Colleges, and will tend to enlarge their classes, as one source of great expense, viz: the practical study of anatomy, will now be removed. The history of the Act, and the law as passed by the Legislature will appear in our next.

In consequence of a press of material, we are obliged to omit the article on Treatment of Irregularities, which will appear in our October number, the proceedings of the Merrimack Valley Dental Association, also Essays by Drs. Wildman, Truman and Barker.

G. T. B.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

S. E. corner Arch & Tenth Sts., Philadelphia.

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243 *North Ninth Street.*

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Twelfth Annual Session, 1867-'68.

PRELIMINARY LECTURES AND INSTRUCTIONS.—The Dispensary and Laboratory of the College will be opened on the 1st of September, where ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability; and during October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on the first Monday in November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below:

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation,

and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

ANATOMY AND SURGERY.

The instruction in this department will embrace a plain and comprehensive view of the structure of the human body. The lectures and the demonstrations will be given over *the dead body dissected for the express purpose* of elucidating the subject. With the same object, vivisections on the lower animals, while under the influence of an Anæsthetic Agent, will be employed. Such description of the comparative anatomy, microscopical structure and connections of the teeth, as their importance may demand, will be fully given. The valuable and extensive collections of Anatomical Preparations of the incumbent of this chair, consisting of wet and dried specimens, papier mache manikins, models in wood, and accurate French plates, will enable him to illustrate his course of lectures very clearly.

In addition to the above course, a Surgical Clinic will be held by Doctor Forbes during every week, for the purpose of performing such operations in oral and general Surgery as may be deemed advisable to advance the student in this particular branch of knowledge. The cases will be selected from a dispensary which the Faculty have established.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical pecularities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND HYGIENE.

The intention of the course on PHYSIOLOGY AND HYGIENE will be to convey a knowledge of the essential principles of general and human physiology, in such a mode as will best develop their application to the preservation of health. The subjects of physiology and hygiene will be, to some extent, interwoven, with a constant aim at clearness and simplicity of instruction.

CLINICAL INSTRUCTIONS.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the Demonstrators.

In the Operative Department.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

In the Mechanical Department.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

Practical Anatomy.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

Hospital Clinics.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEES.

Matriculation, (paid but once,) - - - - - - - - -	$5 00
For the Course, (Demonstrator's ticket included,) - - - -	100 00
Diploma, - - - - - - - - - - - -	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Leidy's or Gray's Anatomy; Carpenter's or Kirk's Physiology; United States Dispensatory; Pereira's, Biddle's or Stille's Therapeutics; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; Hartshorne's Principles and Practice of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the subject.

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupilage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before

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Candidates for Graduation who have not Attended Lectures.—Dentists who have been in continued practice since 1852, are eligible to be candidates for graduation without attendance on lectures. The candidate for graduation must present satisfactory evidence of his having been in practice for the allotted time, also of his good standing in the profession. He must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must present specimens of his workmanship. He must undergo a satisfactory examination by the Faculty, on each of the branches taught by them; when, if qualified, he shall be recommended to the Board of Trustees, and if approved, shall receive the degree of Doctor of Dental Surgery. Of this class of graduates, the matriculation and diploma fees only are required.

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J. Q. McDavid,	South Carolina.
D. S. Dickerman,	Massachusetts.
C. O. Dean,	Ohio.
J. P. Eldridge,	"
L. F. Frink,	Florida.
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Tomas Gonzalez,	"
Rafael Gonzalez,	"
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S. Hassell,	
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John S. Smith,	"
C. W. Strang,	New York.
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J. A. Salmon,	"
J. A. Sheldon,	New York.
M. O Smith,	"
Sam. Strohm,	Pennsylvania.
J. R. Thompson,	South Carolina.
G. H. Taylor,	North Carolina.

G. R. Thomas,	Pennsylvania.
Henry Tucker,	New Hampshire.
James Taylor,	England.
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Francisco Vega,	Porto Rico.
J. E. Valentine,	Pennsylvania.
J. H. Winslow,	"
J. M. Whitney,	Ohio.
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B. Wood,	New York.
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GRADUATES, 1866-'67.

Stephen Armos,	Cuba,	Dental Caries and its Treatment.
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Edward M. Beesley,	New Jersey,	Mounting Teeth on Rubber.
Charles Bulkley,	Pennsylvania,	Mechanical Dentistry.
John N. Crouse,	Illinois,	Filling Teeth after the Pulp is Exposed.
Charles H. Darby,	Missouri,	Hysteria.
Frank Darby,	New York,	Odontalgia.
Squire C. Dayan,	"	Diseases of the Dental Pulp and Periosteum.
James W. Gurley,	Oregon,	Treatment of Exposed Pulps.
Robert Huey,	Pennsylvania,	Inflammation.
James Lewis,	Vermont,	The Extraction of Teeth as they pertain to [Irregularities.
David R. Martin	Pennsylvania,	Caries of the Teeth.
Mariano Martorell,	Porto Rico,	Caries of the Teeth.
John Q. McDavid,	South Carolina,	Extraction of Teeth.
Henry W. Moore,	Pennsylvania,	Combustion
Gonzales Orue,	Cuba,	Mechanical Dentistry.
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George R. Thomas,	Pennsylvania,	Preservation of the Teeth.
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S. Hassell,	"
A. L. Northrop,	"
Enos G. Roy,	"
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W. W. Russell,	Massachusetts.
J. A. Salmon,	"
E. G. Leach,	"
D. S. Dickerman,	"
Chester Heath,	New Hampshire

DEMONSTRATOR'S REPORT—SESSION OF 1866-'67.
OPERATIVE DEPARTMENT.

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Number for whom the following operations were performed,	251

Gold Fillings,	1216
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Hill's Stopping,	96
Amalgam,	26
Treatment and Filling Pulp Cavities,	329
Superficial Caries Removed,	55
Removal of Salivary Calculi,	360
Treatment of Periostitis,	35
Do Alveolar Abscess,	45
Do Inflammation of the Gums,	36
Do Partial Necrosis,	24
Do Irregularities,	61
Pivot Teeth Inserted,	17
Extraction of Teeth and Roots,	2451
Total,	58

W. W. Hoffman, Reporter. Edwin T. Darby, Demonstrator.

MECHANICAL DEPARTMENT.

167 *Patients were supplied with the following Artificial Dentures:*

Full Upper and Under Sets,		48
Full Upper Sets,		48
Full Lower Sets,		6
Partial Upper Sets,		66
Partial Lower Sets,		9
Obturator,		1
Cases of Artificial Vela,		3
Teeth Mounted on Metal Base,		371
Do Hard Rubber Base,		2289
Whole Number of Gum Teeth,	2225	
Do Plain Teeth,	435	
Number of Teeth Mounted for Patients,		2660

Depositing Sets.

17 Full Upper Sets on Hard Rubber Base, No. of Teeth,				238	
1 Partial Set	do	do	do	5	
6 Full Upper Sets on Metal Base,			do	84	
8 Partial Sets.	do		do	51	
3 Upper Sets on Metal Base, with Rubber,			do	39	
1 Full Upper Set. Continuous Gum,			do	14	
1 Obturator, Hard Rubber.					
1 Regulating Plate, Metal.					
Gum Teeth	do			361	
Plain do	do			70	
Number Teeth on Depositing Cases,					431
Total Number of Teeth Mounted,					3091

J. M. Barstow, Demonstrator.

JOHN KLEIN

REMOVED

TO THE S. W. CORNER OF TENTH & ARCH STS.

PHILADELPHIA, PENNA.,

WHERE HE HAS OPENED A LARGE

DENTAL DEPOT AND MANUFACTORY,

For the Sale of the Latest Improved Teeth,

FOR ALL KINDS OF RUBBER AND PLATE WORK,

WITH DOUBLE HEADED PINS.

Together with a large assortment of all kinds of Dental Instruments, and other articles needed by the profession.

All orders promptly filled. Also on hand, lots of Flaming Testimonials, as regards the quality of my Porcelain Teeth, from some of the best Dentists in the profession.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

S. E. corner Arch & Tenth Sts., Philadelphia.

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ELLERSLIE WALLACE, M. D.,
BENJAMIN MALONE, M. D.,
W. W. FOUCHE, D. D. S.,
GEORGE TRUMAN, M. D.,
S. DILLINGHAM, D. D. S.,
G. R. MOREHOUSE, M. D.,
THOMAS WOOD,
HON. W. S. PEIRCE,
CHARLES BULLOCK,
A. STILLE, M. D.,
J. D. WHITE, D. D. S.,
CHARLES HAMILTON, Sec'y.

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EMERITUS PROFESSOR.

T. L. BUCKINGHAM, D. D. S.,
PROFESSOR OF CHEMISTRY.

E. WILDMAN, M. D., D. D. S.,
PROFESSOR OF MECHANICAL DENTISTRY AND METALLURGY.

G. T. BARKER, D. D. S.,
PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS,

W. S. FORBES, M. D., D. D. S.,
PROFESSOR OF ANATOMY AND SURGERY.

JAMES TRUMAN, D. D. S.,
PROFESSOR OF DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

HENRY HARTSHORN, M. D.,
PROFESSOR OF PHYSIOLOGY AND HYGIENE.

EDWIN T. DARBY, D. D. S.,
DEMONSTRATOR OF OPERATIVE DENTISTRY.

J. M. BARSTOW, D. D. S.,
DEMONSTRATOR OF MECHANICAL DENTISTRY.

T. L. BUCKINGHAM, DEAN,
243 *North Ninth Street.*

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Twelfth Annual Session, 1867-'68.

PRELIMINARY LECTURES AND INSTRUCTIONS.—The Dispensary and Laboratory of the College will be opened on the 1st of September, where ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability; and during October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on the first Monday in November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below:

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation,

and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them ; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

ANATOMY AND SURGERY.

The instruction in this department will embrace a plain and comprehensive view of the structure of the human body. The lectures and the demonstrations will be given over *the dead body dissected for the express purpose* of elucidating the subject. With the same object, vivisections on the lower animals, while under the influence of an Anæsthetic Agent, will be employed. Such description of the comparative anatomy, microscopical structure and connections of the teeth, as their importance may demand, will be fully given. The valuable and extensive collections of Anatomical Preparations of the incumbent of this chair, consisting of wet and dried specimens, papier mache manikins, models in wood, and accurate French plates, will enable him to illustrate his course of lectures very clearly.

In addition to the above course, a Surgical Clinic will be held by Doctor Forbes during every week, for the purpose of performing such operations in oral and general Surgery as may be deemed advisable to advance the student in this particular branch of knowledge. The cases will be selected from a dispensary which the Faculty have established.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical pecularities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND HYGIENE.

The intention of the course on PHYSIOLOGY AND HYGIENE will be to convey a knowledge of the essential principles of general and human physiology, in such a mode as will best develop their application to the preservation of health. The subjects of physiology and hygiene will be, to some extent, interwoven, with a constant aim at clearness and simplicity of instruction.

CLINICAL INSTRUCTIONS.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the Demonstrators.

In the Operative Department.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

In the Mechanical Department.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

Practical Anatomy.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

Hospital Clinics.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEES.

Matriculation, (paid but once,) - - - - - - - - -	$5 00
For the Course, (Demonstrator's ticket included,) - - - -	100 00
Diploma, - - - - - - - - - - - -	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Leidy's or Gray's Anatomy; Carpenter's or Kirk's Physiology; United States Dispensatory; Pereira's, Biddle's or Stille's Therapeutics; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; Hartshorne's Principles and Practice of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the subject.

QUALIFICATIONS FOR GRADUATION.

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Treatment of Periostitis,	35
Do Alveolar Abscess,	45
Do Inflammation of the Gums,	36
Do Partial Necrosis,	24
Do Irregularities,	61
Pivot Teeth Inserted,	17
Extraction of Teeth and Roots,	2451
Total,	58

W. W. Hoffman, Reporter. Edwin T. Darby, Demonstrator.

MECHANICAL DEPARTMENT.

167 *Patients were supplied with the following Artificial Dentures:*

Full Upper and Under Sets,		48
Full Upper Sets,		48
Full Lower Sets,		6
Partial Upper Sets,		66
Partial Lower Sets,		9
Obturator,		1
Cases of Artificial Vela,		3
Teeth Mounted on Metal Base,		371
Do Hard Rubber Base,		2289
Whole Number of Gum Teeth,	2225	
Do Plain Teeth,	435	
Number of Teeth Mounted for Patients,		2660

Depositing Sets.

17 Full Upper Sets on Hard Rubber Base, No. of Teeth,				238	
1 Partial Set	do	do	do	5	
6 Full Upper Sets on Metal Base,			do	84	
8 Partial Sets,	do		do	51	
3 Upper Sets on Metal Base, with Rubber,			do	39	
1 Full Upper Set, Continuous Gum,			do	14	
1 Obturator, Hard Rubber.					
1 Regulating Plate, Metal.					
Gum Teeth	do			361	
Plain do	do			70	
Number Teeth on Depositing Cases,					431
Total Number of Teeth Mounted,					3091

J. M. Barstow, Demonstrator.

CAUTION.

SUCH OF THE PROFESSION AS DESIRE TO USE THE

GENUINE

LAWRENCE'S AMALGAM,

Are cautioned against purchasing of parties who claim to manufacture such Amalgam from my Formula, and with my consent, as no one has either the one or the other.

The guilty parties will soon be brought to grief; meantime

Purchase only of Responsible and Well-known Parties,

If such are accessible, otherwise send direct to the undersigned, sole manufacturer and proprietor,

A. LAWRENCE,

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BUFFALO DENTAL MANUFACTURING COMPANY,

Nos. 247 and 249 Main Street, Buffalo, N. Y.

MANUFACTURERS AND DEALERS IN DENTAL GOODS,

AT WHOLESALE AND RETAIL.

WHITNEY'S VULCANIZERS AND FLASKS

For Alcohol and Gas.

For Kerosene.

Old style.

New Style.

WHITNEY'S VULCANIZER

Is composed of two pieces only, a copper pot, and a brass head that screws on to the pot.

HAYES' VULCANIZING OVENS

Are of copper, of the usual thickness, surrounded with a shell of malleable iron, ⅛ of an inch thick. The boilers are made with and without the "iron clad" shell.

Pat. Mar. 5, 1861, Apr. 3, 1866.

PRICES.

No 1, (1 flask) Whitney's or Hayes'	$15.00
No. 2, (2 flask) " "	16.00
No. 3, (3 flask) " "	17.00
No. 1, (1 flask) iron clad oven, Hayes'	15.00
No. 2, (2 flask) " " "	16.00
No. 2, (2 flask) " boiler, "	17.00
No. 3, (3 flask) " " "	18.00

Apparatus for heating either with gas, alcohol or kerosene, at the same price.

PRICE OF FLASKS.

Whitney's (malleable iron)	87½ cents.
" bolts in sets of 3,	18 "
Hayes' flask and clamp complete,	87½ "
" "	37½ "
" clamp,	50 "

HAYES' VULCANIZERS AND FLASK.

Iron Clad Oven.

Iron Clad Boiler.

SNOW & LEWIS' IMPROVED AUTOMATIC PLUGGER.

Patented Oct. 30, and Nov. 20, 1865.

This instrument is the most efficient substitute for the mallet and assistant yet devised. The working parts are all contained in the handle. They can be locked by the ring on the handle, enabling the plugger to be used as a hand instrument. This feature is not presented in any other spring plugger in market.

The Rack is designed to hold the points as represented in the cut, and enable the dentist to change them with one hand when operating. The base is of cast iron, sufficiently heavy to retain its place on the table. It will be found to answer the purpose designed perfectly.

PRICES.

Automatic Plugger, triple gilt,	$14 00
Automatic Plugger, silver plated,	10 00
Points, per dozen,	3 50
Enamel Chisels, per set of six,	1 75
Points in the rough, per dozen,	1 50
Point Rack,	2 00

RACK FOR POINTS.

Also manufacturers of various other articles. See advertisement next month.

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THE

DENTAL TIMES.

VOL. V. PHILADELPHIA, OCTOBER, 1867. NO. 2.

MAGNESIUM AND ZINCO—MAGNESIUM LIGHT.

BY B. WOOD, M. D., D. D. S.

It is only within the past ten years that the wonderful illuminating power of the magnesium light has commanded public notice. M. Bussy, in 1830, obtained the metal in sufficient quantity to determine its properties, (Davy had previously proved its existence ;) but it remained merely an object of scientific inquiry, until, by improved processes of preparation, it was produced in sufficient amount to suggest its practical application in the arts, when it at once became invested with general interest. To M. Deville, of France, who was so successful in the preparation of aluminium, do we owe, perhaps, more than to any one else, the placing of this other still more remarkable metal within the reach of art.

In the *Comptes Rendus* for February 23, 1867, M. M. Deville and Caron gave a detailed paper on the preparation of magnesium, being similar to the processes employed in the reduction of aluminium, and also communicated some information respecting the characters of the metal not before determined. Its density is 1.75. It fuses at about the melting point of zinc—at a low red heat—and at a little higher temperature bursts into a dazzling white flame, attended with phenomena observable in in the combustion of zinc. Like zinc, it is volatile, and at nearly the same temperature. An ounce could be easily distilled at a time.

Shortly after, M. Bunsen, of Paris, proposed the employment of the metal in the form of wire for purposes of illumination. He found a wire one-hundredth of an inch in diameter to burn at the rate of about three feet in a minute, and give a light equal to seventy-four stearine candles. The light, according to his estimate, is only thirteen times less intense than actual sunlight. He proposed having the wire wound upon bobbins, and from these paid out to the lamp. Since them, no little ingenuity has been expended in devising and perfecting suitable means and arrangements for utilizing this light, especially for taking photographic views at night, and in caverns and other obscure recesses, for which purpose it is so valuable for its great actinic power; the chief practical difficulty being the rapidity with which the metal is consumed, involving great inconvenience, as well as cost.

The *London Photographic News*, in an article urging the claims of the magnesium light over other artificial lights, (quoted in the *Scientific American* for August 8, 1863,) describes an arrangement, then recently devised, wherein "a spool of wire is gradually unwound, the end being pushed horizontally into the flame of a spirit lamp, where it ignites, and continues to burn as long as it is fed with wire. It is in this feeding," it adds, "that the great difficulty has resided."

In the *Druggists' Circular* for January, 1866, we find announced, among the excerpts, the invention, in Edinburgh, of a lamp for burning magnesium, by which, it is stated, "all the difficulties of using this light for streets, public buildings, light-houses, and so on, are overcome. This lamp is described as being "of a character so simple and effective that all the mechanicians are astonished. It is one of those happy ideas that seem inspired, and at the same time make every body wonder they had not thought of them. The magnesium is reduced to a fine powder, then mixed with sand, it runs through a tube as from an hour-glass, and when lighted by a match, a brilliant and steady flame is produced, until the reservoir is exhausted." The effect of the sand, as in this case, would be to moderate and equalize the combustion.

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JUL 31 1891

This, however, does not appear to have met the expectations raised in regard to it—certainly has not come into general use—and the lamps now employed are constructed for burning the metal in the form of ribbon, which is "paid out" by means of a clock-work arrangement. A recent improvement on this plan is described by A. R. Leeds, A. M., in the *Dental Cosmos* for April, 1867, in an article on "The Magnesium Light," wherein the author, among other obvious uses, directs attention to the applicability of this light to dental purposes, as in the illumination of the interior of the mouth, whether for mere inspection, or for operation. And it is this "odontoscopic" view of the subject that has prompted the present communication.

But, notwithstanding the devices of ingenuity, the great inherent difficulty remains as to the rapid combustion of the metal, as well as the liability of the flame becoming extinguished, as it were, by its own violence. When used in the form of ribbon, it burns away still more rapidly than in the form of wire, although the flame is more equable and continuous.

This difficulty, however, may, in a measure, be obviated, and some advantages obtained by burning the metal in *connection with zinc*. It is just about a year ago since I demonstrated this experiment, (on the 4th of July last.) Perceiving the practical objection in the way of burning magnesium by itself for purposes of illumination, owing to its speedy combustion, &c., it occurred to me that the using of some other metal in connection with it might be of advantage in controlling or modifying the light; and, and from the property of zinc to take on combustion at a bright-red heat, I inferred that the heat of the ignited magnesium would be sufficient to produce and keep up combustion in zinc, which, in its reaction, might serve not only to equalize, but also to perpetuate, the combustion of the magnesium. Having, accordingly hammered down a piece of magnesium wire, (not having the metal in the form of ribbon at hand,) and also a narrow strip of sheet zinc to about the same thickness, and pinned the two together with little zinc pins, I ignited the conjoined strip in the flame of a spirit lamp, when the whole burned steadily with a bright white light, until completely consumed, and much more slowly than magnesium by itself, leaving the "ashes" or oxide of both intimately cohering the entire length. A similar strip of zinc alone ignited under the jet of a blow-pipe, (but not in the ordinary spirit flame,) burned with a yellowish blue-white light flame for a moment, but only for a moment, requiring to be re-kindled each time. I intended to experiment a little more systematically, after procuring some magnesium ribbon of uniform thickness, but other matters called, then—and time flies! So it was not until after reading Prof. Leeds' interesting communication that I recurred to the subject.

Upon repeating the experiment with magnesium ribbon, thickness No. 36 of Brown and Sharp's standard gauge, pinned to a strip of zinc rolled to No. 34, the piece burns slowly, and when held with the zinc side up, burns steadily to the end. With strips of zinc No. 34 on both sides, it ignites with more difficulty, and goes out after a moment's burning. But with thinner strips of zinc on each side, say about No. 38, (my gauge measuring only to 36,) it burns steadily and completely, even better than with zinc No. 34 pinned to one side only. Edge up appears to be the best position for burning, when held horizontally. Using single strips of both metals of the same thickness, (No. 36,) I find the united "flambeau" to burn from two and a half to three times as long as the magnesium by itself. The zinc alone, when uniformly *semi-oxidized at a red heat, just below the point of combustion*, burns, after once ignited, until consumed, giving a yellowish-white or sun-like light.

The ZINCO-MAGNESIUM light is of a pure, clear white, hardly distinguishable from the magnesium light; not quite so intense, however, but milder and steadier. It would seem to possess advantages which, in connection with its greater economy, may render it quite as useful and more generally applicable for purposes of illumination.

ALBANY, June 29, 1867.

REGULATING TEETH.

BY C. A. MARVIN, D. D. S.

[CONTINUED.]

Having considered, in my last article upon this subject, correct facial expression, and the importance of knowing what it is and how to preserve it, in the operations for regulating teeth, I will in this paper notice the second of the four leading principles heretofore stated as governing all such operations.

The Restoration of Correct Facial Expression when Lost.—The same remarks which were made in treating the previous proposition are applicable here. It is as necessary to know what is the correct expression of the face, in order to restore it, as to preserve it. There is more difficulty, however, in arriving at a correct conclusion in the former case than in the latter.

When the expression of the face is perfect, it is comparatively easy to determine that fact, for the thing is actual, and present to our vision; but when this is not the case, we are obliged to picture to ourselves in imagination the form and expression which we conceive to be the correct one. By studying the deformities, and imagining the form and appearance which the features would assume, were these deformities removed, we create an ideal, to reach which all our efforts are expended. It is, therefore, of the first importance to be able to determine, upon a close study of the features, what expression they should possess, in order to work intelligently, and with a good promise of success.

The lips may protrude, so as to be out of proportion with the remaining features. Now comes the question, shall any of the teeth be sacrificed? The immediate answer, "No," which some of our learned brethren would pronounce with emphasis, is not always the right verdict. The fear of severe criticism from those who say, "Save a natural tooth under any and all circumstances," would doubtless lead some to hesitate in advising extraction, and others to pronounce at once against it. If the result of such fear be to cause hesitation, it is well; for it is no small fault to extract unnecessarily, and where a dentist is not clear in his judgment, let him always hesitate. But when an intelligent and competent operator is convinced that extraction is proper, let no fear prevent him from resorting to it, though a whole corps of hobby-riders were witnesses of the act. Their shouts of "Stay! stay! don't sacrifice a natural organ," should be disregarded, and he pursue his wisely chosen course deliberately and perseveringly to the end. Thus only can he be a man worthy of trust, and able to direct his own course. If he be a competent operator, not performing in advance of the decisions of his judgment, he will be able to give a reason for the course he is pursuing; and no dentist should ever perform an operation, apply a remedy, or pursue a method, unless he has a reason for it, which to him seems sound, and which he can state.

It is impossible, in treating of principles, as is done in these papers, to specify cases where any special mode of operation should be pursued to the exclusion of all others. Every case of irregularity is judged upon its own merits, and such a course of procedure decided upon as is suggested by the necessities of the case. I will mention one, however, which unmistakably calls for extraction. The upper lip protrudes to a deforming degree; the lower one is normal. Upon examination, the articulation of the back teeth is found to be good, *i. e.*, the outer or buccal edges of the upper molar teeth bear the proper relation to the corresponding edges of the lower molars, so that when closed, the sutural form of occlusion is observed to exist. Now, to reduce the deformity of a protruding upper lip, one of two things must be done: either the arch must be expanded, or a tooth on each side removed. In the case specified, if the arch is expanded, the articulation is broken up, the sutural occlusion no longer exists, an undue prominence is given to the corners of the mouth, and the best result not obtained. Extract the second bicuspid on each side, draw in the incisors, canines and first bicuspids, and the irregularity is corrected, the articulation preserved, no excessive fullness of the mouth experienced or perceived, and a good result attained.

A second phase of this form of irregularity, however, calls for an entirely opposite course of treatment. The same protrusion of the upper lip occurs; but upon examining the teeth, it is found that there is a contraction of the sides of the arch, and that the bicuspids and perhaps the molars are, to use a common expression, as though they had been *pinched together.* In such a case the forceps should be allowed to remain in the drawer, for all the teeth can and should be retained. The course of procedure in such a case would be to commence with the bicuspids, and, perhaps, the molars themselves, as must be determined by the circumstances of the case, and spread them sufficiently to secure the proper room for drawing back the front teeth. This will give a correct arch, more room for the tongue, which generally wants all it can get, a uniform fullness of the lip and cheeks, and satisfaction to both operator and patient.

Sometimes, in order to correct the irregularity caused by a contracted arch, upper, for instance, it may be necessary to throw out all the teeth, enlarging the entire arch, and to do this to such an extent as to give the incisors an outward slant or inclination. Indeed, this has to be done at times to such a degree as to leave a deep impression in the upper lip just at the base of the nose. This irregularity will sometimes require the insertion of a mechanical appliance for its entire correction. If this enlargement of the arch is effected in the mouths of children when quite young, the depression in the gum just above the roots of the teeth may fill up by the growth of the parts. If so, well. When performed on patients over the age of fifteen, there is little hope of this consummation being effected by nature. In such cases, a well shaped and accurately fitted "plumper" of vulcanized rubber extending around the entire upper gum, from molar to molar, and secured by slight and ingenious attachments to the molar teeth, will bring out the lip to its required fullness, and be of no inconvenience to the wearer.

In restoring correct expression, as well as preserving it, haste and injudicious treatment should be avoided, great care be exercised in deciding upon what operations to perform, and the idea ever kept in mind that it is far wisest to hesitate and study before commencing treatment, and thereby prevent damage, than, by an apparent readiness to operate, create difficulties to be removed, cause unnecessary pain, or produce disastrous results.

TIN FOIL.

BY JAMES TRUMAN, D. D. S.

It is to be regretted that the influence of some of our best and most respected operators should be given against the use of this metal, that has so long and so well served our purpose. The June number of the *Dental Cosmos* contains a paper read before one of our Associations, by a valued member of our ranks, in which, after describing the qualities of tin foil, says: "We may therefore assume, that the day for tin stoppings has nearly passed." If it be a fact, that a very large majority of the members of our profession have ceased to use tin, it becomes the duty of all, who are interested in the advancement of our calling, to know the reason why, and whether there is any justness in the conclusions arrived at; for there is no truth more palpable to all reflecting observers than that majorities are as frequently in the wrong as minorities. Therefore, while there may be truth in the assertion, which forms the text of this article, there must be a reason for the statement that tin foil has gone out of use, other than that it has not been found a good and reliable preserver of tooth substance. It is my purpose to give what I consider to be these reasons, and also why, in my judgment, such opinions are uncalled for, and detrimental to the best interests of practitioner and patient.

The key-note of the objections to its use is struck by our friend when he says: "As it requires nearly the same amount of time and labor to prepare and fill a cavity with tin as with gold foil, it can hardly be said there is any economy in its use." It requires great labor. "It is non-adhesive," and must be "consolidated by the wedging process." In a word, the majority consider that a good tin filling is not equal to one of amalgam, and that one of amalgam requires neither skill, patience or time to accomplish; therefore they, the majority, have decided to use amalgam and discard tin. Such, in brief, is doubtless a correct statement of the reasoning and conclusions of the majority. If tin is to be discarded, resort must be had to amalgam as we have nothing else of sufficient density and equal cheapness to use, if Wood's metal be excepted, which is considered by the same writer, and most others, as worthless, but in which opinion I can by no means coincide.

It is folly to suppose, that if we succeed in destroying what little faith remains in tin foil, that we thereby drive operators to the use of gold. Such can never be the result. The great mass of dentists reside in small towns, where prices, as a rule, range very low, and where patients will not pay the first cost of gold, necessary to use, to save the best tooth they possess. Their willingness to have the tooth filled rises in proportion to the cheapness of the work, and the operator is obliged to resort to an inferior and cheap substitute, and that often contrary to his highest convictions of duty. There may possibly come a time when such people will pay from ten to forty dollars for a gold filling. When that time does come, it will be safe to ignore the good qualities of tin foil, and not until then, in my judgment; for I agree with the writer most cordially, that "for real permanent plugs, the best material, in the great majority of cases, is pure gold."

The objections to tin foil, briefly stated are, that it has—

1st. Insufficient density.

2d. It is entirely non-adhesive.

3d. It oxidizes in the mouth.

4th. It requires great labor to make a perfect filling.

My own judgment and experience has led me to the opinions, equally briefly stated—

1st. That *it has* sufficient density.

2d. That it has ample adhesive property.

3d. That, to a limited extent, it oxidizes in the mouth.

4th. It does not require as much labor as gold.

It is not possible to reconcile opinions so directly antagonistic as these statements. It therefore simply becomes my duty to bring what support there may be found to sustain the side of the question experience and some experiment has led me to adopt.

No one will undertake to prove that the density of tin foil bears any comparison to that of gold; but that it has a density of its own, well understood and equal to the preservation of most teeth, I think is sustained by the experience of most operators, and certainly by my own. It must, I think, be conceded, that block tin, could it be placed in a cavity, retaining the density as we find it, it would be equal to all the attrition that could be brought to bear upon it. Now, is it possible to imitate closely this density? I unhesitatingly assert that it can, and that in precisely the same manner that bring our gold fillings to approximate melted metal. The difference between what I choose to term good tin fillings, lies simply in the mode of manipulating the metal. The opinion is generally received, that tin has no adhesive property, and must be packed by the individual pellet process. This mode of filling with gold has long since been discarded by good operators, as one ineffectual and unequal to all emergencies. The same reasoning will apply to tin; and I undertake to assert, that it is just as difficult to make a good tin filling by the same mode as that of gold. This brings us to the consideration of the adhesive property of tin foil.

Is the cohesion of the lamina of foil equal to our requirements? I answer, unhesitatingly, yes. The cohesive property is best exhibited in tin shavings, freshly made. These are procured from a bar of block tin by a clean, sharp knife, removing a thin piece. They require but little force to manipulate, the cohesion being so perfect, that a filling of these shavings may be made to assume the form of plate as readily as melted metal; a feat I have not been able perfectly to accomplish with tin foil. This simple experiment sufficiently proves its cohesive property, which, while it does not remain equally the same in foil, does exist in that, when well prepared, to an extent equal to our necessities. This remark, of course, does not include the restoration of the form of the tooth to the extent that may readily be accomplished with gold; but even here it may be rendered useful in moulding to original shape certain lost portions. It would be unreasonable to expect a cusp re-formed in tin to stand the force of occluding teeth.

A word on the mode adopted to secure the advantages of this adhesive property. Tin foil is generally miserably made, very little in the market being fit to use. Select the whitest looking; all dark foil is worthless. It should be tough, and give out a clear, crackling sound when shaken. Thin foil is generally defective, while very thick is frequently very difficult to manage. Select a medium grade. In preparing the ropes, *roll as little* as possible. My plan is to cut a sheet into four or five strips, and *gently* twist it once, the object being simply to make handling convenient. It packs under the instrument better in narrow strips, without folding or twisting. These strips or ropes are then cut of convenient lengths, and packed precisely, and with the same instruments that are considered necessary in adhesive gold, and with equally good results.

The experience of the preservative qualities of tin in comparison with gold has been fully demonstrated in one of our public institutions, with which I have been professionally connected for several years, and where the only materials for permanent fillings allowed are tin and gold foils. As the patients are continually under my supervision, the opportunities have not been wanting to test this metal thoroughly. The result has been so satisfactory, that I would do violence to my own convictions were I to fail to use what little influence I may possess to increase the use of this foil, rather than by silence allow the inference to be drawn that the opinions expressed are universally admitted to be true. Tin foil has been used in this institution in all classes of cavities, and upon all kinds of patients; and, in the several years of constant watchfulness, I have yet to find one that has not proved equally as good for all purposes as gold, except, as before remarked, in the restoration of lost parts, where the destruction has been extensive.

The oxidation of this metal is, perhaps, the greatest objection to it; but this applies to all metals, except gold. Even this metal so frequently assumes a coppery color in the mouth, that many have been irresistibly led to the conclusion that much of it is alloyed. But the oxidation of tin cannot be considered a serious matter, as it extends no further than the surface of the metal, and does not involve the tooth tissue, as does that of the oxidation of amalgam.

The influence that has been, and still is exerted directly by open advocacy, and indirectly by the condemnation of good and cheap substitutes for gold, to bolster up the use of amalgam, is certainly working great injury to the best interests of the operative branch of our profession. With amalgam on the one hand, and rubber on the other, it need require no prophet to foretell the day when those who have taste and skill to execute will look elsewhere to gratify that esthetic ambition that should be the incentive to action. This desire, so prevalent, to cultivate questionable modes of making money, at the sacrifice of the beautiful in our specialty, is to be deprecated as unworthy the age and cause we advocate.

AMALGAM IN DENTAL PRACTICE.

BY DR. A. A. COOK.

(Read before the Massachusetts Dental Society, April, 1867.)

"Prove all things: hold fast that which is good."

(CONCLUDED.)

The idea of syphilis by accident, was at first so absurd, that as a Frenchman would say, "I felt like laughing all the day long." I find, however, medical writers do speak of such possibility. The syphilitic poison is not often taken, save in the ways of licentiousness; but the disease may be contracted without crime, and the books caution against condemnation of a good man's name because of syphilis. It becomes us to be charitable. Peace to the memory of Ames and his perchance innocent ashes. I had not disturbed either, but that truth—science—seemed to demand as much.

Whether syphilis be ever accidental or not, it is certain that its sequences are often hereditary for generations. The iniquities of the fathers are thus visited upon the children. Teeth are set on edge because of what fathers have eaten. Sad sequences are at times seen even in the structure of the teeth. But this is digression; which, having made, shall point a moral. We do well to be impressed and to impress it upon all, that vice has its hereditary sequences; and that each should live so as not to entail positive evil upon succeeding generations. Progenitors ought to keep in mind the welfare of posterity. Even the character of teeth is to be thought of. Amalgam, not syphilis, is the subject.

The amalgams used at this date, are composed of about equal parts in weight of banca tin, and silver pure as coin, with a small sprinkling, it may be, of platinum. A slight difference in the proportions of the two metals first named, make the plug harder or softer. Made of tin alone, it is too soft to resist the wear from mastication: made of silver alone, it is liable to tarnish and blacken. Besides, it is desirable to have as little mercury as possible in the plug. It has been found where about equal parts of silver and tin are employed, not more than one-third the weight of mercury is required; but if the plug be wholly of tin or of silver, a plug cannot well be made that shall contain less than 50 per cent. of mercury. A plug made of Lawrence's amalgam, according to directions, is supposed to contain not more than 33⅓ per cent. of mercury. And this makes a plug about as hard as adamant, and that usually keeps untarnished. For aught I know, others may make as good an article. This serves me well, as I find it does my patients. I once used Townsend's, and might again, only that the doctor abandoned the whole thing, and advised against its use altogether. I choose to use what an honest, intelligent manufacturer has confidence in, though he cautions against its indiscriminate use. We do well to heed his caution, and I more than question the counsel of Townsend to discard it altogether, though such was his last advice. Perhaps no purer minded man than he ever filled a place in the dental profession. He did much to exalt his profession. He saw that his favorite amalgam was misused and abused. He rather it were not used at all than see it used in the manner, and to the extent it was. He feared more evil than good from its use. I have yet to learn that he ever denounced it as having caused salivation in any case that came within his practice or knowledge.

As to the escape of free mercury from the plug after the tooth is filled, I do not believe it can occur where there has been the least care taken to express the mercury. There is too much affinity with mercury for these metals to admit of such a freak. After the plug becomes consolidated, it is, to speak with all reverence, a trinity in unity. There is no free mercury to escape. The plug may wear away from mastication as "a continual dropping wears a stone;" and thus an infinitessimal portion of the filling find its way into the stomach, mixed with the food swallowed. It is more than doubted that such homœopathic dose ever produced salivation.

Perhaps no one has done more to oppose the use of amalgam than J. D. W., formerly editor of the *Dental Cosmos*. He has not for many years filled a tooth with amalgam, but has had some experience, however, as to the workings of it—"experience from observation," as Mrs. Partington would say. This kind of experience has been quite extensive with him, and it would seem his field of observation has been most unfortunate. He never saw an amalgam filling that was fit for the mouth, or that answered any good purpose. He has seen, I will not say how much, salivation caused by it. He scarce ever found one whose teeth had been filled with it that was satisfied with it. All came in the end to express dissatisfaction as they came within the sphere of J. D. W. Any abnormal state of the mouth being presented to his notice, he will not look beyond for the cause, if he can but find an amalgam filling. I will not say that he has amalgam on the brain; but I must say, my experience, from practice and from observation, is in conflict with his. For more than a quarter of a century, I have given some attention to this matter of amalgam. As to the dissatisfaction he has heard expressed, I take it that such expression may have been reflex. It is an easy matter for a dentist of reputation to beget it. He has but to look askance at the obnoxious thing, and it becomes, to the victim, as the poison of asps. I have seldom heard such expression of dissatisfaction, though I have seen work of the kind that deserved to be reprobated, because of the manner of doing it. And the same is true of gold fillings. I have often heard remarks appreciative of the amalgam plug, such as: "There is that tooth that was filled three, five, or ten years since—a doubtful tooth it was, a mere shell—good yet." And such have demanded amalgam in the filling of a better class of teeth, though advised to have them filled with gold. It may be some of this is reflex again. Of course it is to be expected that the patient shall be satisfied, if the dentist has reason to be doing the best his honest intelligence dictates, or his experience and skill qualify him for.

Salivation is a subject that belongs more particularly to the medical profession. I have read enough to learn that there is some mystery connected with it—some uncertainty about it—that doctors disagree concerning it; that they are at conflict among themselves as much as the dental profession. It is unaccountable, the susceptibility of some persons to salivation. A small quantity of mercury will do the work for one at one time; a large dose will not affect another at all, or may not affect one the same at different times. Some are not affected at all by the article. Iodide of potassium is used in such cases to produce some mercurial effect. Salivation occurs from no ascertainable cause at times, its cause being occult. When the cause is supposed to be known, cases show that secondary causes have been mistaken for the primary; that the immediately exciting was not the real. That was more remote and unknown for a time; discovered at last it may be. There is much of uncertainty about salivation. I will give a case in illustration. In my early practice, I had a patient whose business was that of gilding. It was before science had taught the improved method of gilding with gold, and the precious metal was held in solution by mercury, and was thus applied to the article to be gilded, the quicksilver being evaporated or thrown off by heat, leaving the plating of gold on the surface, as desired. This process of coating with gold amalgam was repeated till the thickness desired was obtained. Such was the calling of this man, inhaling the fumes of mercury the most of the time. Handling and breathing it as he did, he must have become saturated with it. I have known him to coat a copper cent with quicksilver by rubbing it on his bare arm. Such the abundance outside the cuticle. I cannot tell how much there was within the skin. I think I found some traces of it in his mouth. The gums became diseased, swollen, inflamed, spongy, and bled easily; the secretions were vile; the breath offensive, and teeth became loose. No doubt his business had to do with this. I tried to do a little for his benefit in the way of treatment, but of course, neither doctor nor dentist could reach his case while thus employed. All remedies were but temporary, and slightly palliative. Subsequently he left the employ of Ames & Co., and I lost sight of him for a number of years. I am told he followed the same business for a time after, at least. He suffered from the effects of mercury, losing all his teeth, though nature gave him a first-class denture, that should have served to the age of a Methuselah.

While in Philadelphia, in 1863, learning that this former friend and patron was living there, I called on him. I learned that he had again been salivated, and that he had barely escaped death, through the treatment of the most eminent of the medical faculty there. The circumstances were these. He had had an artificial double denture of vulcanite furnished by the Emeritus Professor of the Philadelphia Dental College; that after the teeth had been worn a short time symptoms of salivation appeared; that he became dangerously ill; that the eminent skill of the M. D. saved the life of my friend; that the doctor had said there was mercury enough in the rubber used in the case to salivate—well, memory will not vouch the exact number of the genus homo. There was enough to kill at least. Mead had shuffled off the mortal coil, but for the remedial skill of Dr. ——. Possibly some other M. D. might have saved him. The case had a bad look. The professor seemed somewhat nervous because of what had occurred. He seemed a little relieved as he came to know some of Mead's antecedents. I felt some interest in the case, growing out of friendship with the parties, as well as in the decision of the question, *Will vulcanite, as used in dentistry, salivate?*

Mead and his good lady felt to blame my friend, Kingsbury. The professor was once my chum at school. We had been boon companions. We were fellow-students for a time, "learning dentistry," in the phrase of those times. We had been as David and Jonathan to each other. I felt that I must look the facts in the face, and I tried to investigate the affair, and account, if possible, for the unpleasant results, and reconcile parties as best I could. Mead had discarded Dr. Kingsbury, because of what he had suffered, and refused to wear any rubber that was not above suspicion of mercury. He had a set made of black rubber that he was wearing that gave perfect satisfaction. Did the mercury contained in the first denture cause the salivation? It was not the first time he had been salivated. It is established that after the first there is a greater susceptibility of, and tendency to, a second attack. Having once been salivated, the taking of a simple tonic, as golden seal, may produce it. There are reasons to think that anything that excites the glands, or even irritates the mouth, may cause its recurrence in such cases. If ever a mortal can be supposed to retain free mercury in the system, it was present in his. It has been said that by some kind of steaming, and packing, and bathing process, it has been made to exude from the pores, and that globules have actually been found at the bottom of the reservoir, forced from the victimized sufferer. Thus the victim has been laved and cleansed in part, not to say wholly cleansed. Neither can I say I am a believer in such results. I should like first to see the process tried, the globules exuding, or, at least, collected in one or more in the tub containing the residuum. This might relieve one's skepticism. All are not equally skeptical. I have heard dentists talk, and have know them to write, of gold plates being coated over with free mercury, deposited in some way, giving the gold case the appearance as though silvered over. I have seen three cases of silvering over, but was able to account for them on other facts that came to be known. I doubt that ever a plate was coated over from free mercury through the mouth. I believe most fully there is a latent susceptibility of salivation from having been dosed with it. And who has not been? If we are to believe our patients, most of them of adult years have at some time been dosed with calomel, or blue pill; have been mercurialized, if not salivated; and the belief obtains that caries, and most of the ills of a defective denture, if not "all the ills flesh is heir to," are resultant from mercury. As to the case of Mead, I submit it is far from certain that his first artificial denture caused his salivation; that if it did, it was only secondary; that the fact that black rubber is worn with impunity, may be, and probably is, due to the medication he had, relieving in part and for a time the real cause. Admitting that the mercury of the vulcanite used did produce it, as it is said to have done in some few cases, it was because of previous salivation. I think this will be found so in all such cases. Cases of sore mouth, apparently of a mercurial type, are found where dentures of metallic plates are worn. Some of the most abnormal mouths I ever saw have been of this class. It has raised the question, how far mercurialization is the cause? Of the things said, this is the sum, viz: In most or all cases of salivation that come under the observation of the dentist, or of any symptoms of a mercurial type, there is reason to suspect some antecedent outside of dental practice. The real cause runs in the line of blue pill, calomel powders, quack nostrums, and patent medicines. I protest such dire evils shall not be saddled on amalgam. In the language of the late Dr. Townsend: "I have seen hundreds of mouths in which amalgam fillings have been placed, some recently, others several years since, and have never, in any case, seen any injurious systemic effect." It is objected—

1. That amalgam fillings tarnish and blacken. When properly done, this is not often the case. Besides, this is often only the surface appearance, and the same is seen at times in instances of first-class gold fillings. Who has not seen the surface of such blackened over? I have seen amalgam fillings as bright after years as when first put in.

2. That they darken the dentine, discoloring the cavity under the filling. This is so at times undoubtedly, while the outer appearance is all that can be asked for. Such is no serious objection in the class of teeth proper to fill with amalgam. It does not injure or destroy the tooth structure. It may give a darkened hue seen through transparent enamel. In most cases it is not discernible only on removing the plug; and the dentine is as normal, perhaps, as though gold had been used.

3. It shrinks or contracts in hardening, so that the secretions find entrance around the plug, rendering its value quite uncertain. Such shrinkage is more than doubted, if the tooth be duly filled. My observation is, it expands. I have seen marked instances of the kind, and the cause of such expansion is one that has given me some thought. I

shall not obtrude my thoughts at this time as to it. I will say, however, that to obviate this expansion, I should choose to finish amalgam fillings after they have become set or quite hardened. I am convinced the expansion takes place during the process of becoming adamantine. It is better that they be finished and burnished after becoming well hardened.

4. In cavities whose base is on a line with the margin of the gum filled with it, the plug is apt to fail, caries undermining. This is too often the case, as observed by Townsend. The point of failure mentioned is perhaps the most frequent, whatever be the filling. Gold fillings fail often at this point; and they fail because they are not perfect at the base. Is the same not true as to amalgam?

5. Its use is abused. Mere quacks and mountebanks fill all sorts of cavities with it without discrimination, with little or no skill, with no pains-taking in manipulation. It funishes the means of mischief to unconscionable charlatanism, and many are victimized by such practice. All this is too true. But then these same pretenders do at times use gold, and stuff with it, and are as liable to humbug and cheat in gold stuffing as in amalgam plugs. Shall, therefore, the whole field be abandoned to quacks?

6. The public advocacy of its use at all is objected to as unprofessional; as a sacrifice of reputation, even though it be used in private practice. All I have to say to this is, that I do no work professionally that I do not feel to justify before the public as to the reasons at least of the practice pursued. The dentist should be ready to give a reason for his practice in any given case as well as for the hope that is in him. I judge a good amalgam plug is better than a poor gold filling, and that a doubtful tooth saved for a time is better than no tooth; that to save is often better than to extract, though the tooth be but a shell, and the mere wreck of its former beauty. Of course there is much scope for private judgment as to the best means to be used in a given case; at least in the variety that present themselves. "Wisdom is profitable," &c. I have taken some pains to ascertain the present status of its use, and as the result I judge there are few that do not use it, at least occasionally. Its use is professional. It is furnished at all our dental depots, and advertised in all the dental literature of the time. We have Townsend's, Ashmead's, Luther's and Lawrence's from which to select. Some make their own still, it may be. The relative weight used is greater than that of gold in all its forms for filling. The aggregate is weighty. One gives his relative sales as 1 oz. amalgam to $\frac{6}{8}$ oz. of foil, and the aggregate as 339 oz. of amalgam in ten months, and thinks this about the average of his sales. Another gives as the aggregate sales of about ten weeks, viz: gold foil of all kinds $66\frac{7}{8}$ oz., amalgam $83\frac{7}{15}$ oz., which is about the same ratio,

both relatively and in the aggregate as the former. Another gives to 1 oz. of gold foil and crystal gold, (1864,) $\frac{7}{12}$ of an ounce of amalgam; (1865,) $\frac{11}{12}$ of an oz. of amalgam, nearly equal; (1866,) $1\frac{1}{4}$ oz. of amalgam of all kinds to 1 oz. of gold of all kinds. Averaging these three years, the amalgam sold is a fraction short of the sales of gold. Averaging the last two years, there is a larger fraction on the amalgam side.

Another says: we sell 10 oz. of amalgam to 1 oz. of gold; we sell about 50 lbs. a year, or 600 oz., 12 oz. to the pound; average more than that for the years '64, '65 and '66. We can out-sell this house in our New York house as we wholesale a great deal there. (So much as to Townsend's.)

A. Lawrence, M. D., D. D. S., of the Lowell House, a distinguished member of this and other dental associations, is to be mentioned in this connection. His is at this time the leading amalgam in the hearts of the fraternity, and the mouths of their patients. It is combined in accordance with such chemical knowledge as he possesses; of chemically pure silver and chemically pure tin. There was made and sold of it in 1866, $537\frac{1}{4}$ ounces per month on an average through the year, or an equal number of pounds for the year—12 ounces to the pound. The average of sales for the last three months have been 603 ounces, or 50 pounds per month—600 pounds for the year. On the supposition that the sales of all other amalgams amounted to 400 pounds more, which is more than probable, we have at least a full half ton as the annual consumption of the precious compound called amalgam. It is a question if there is a half ton of gold used in filling. Thus it is readily seen that somebody uses *some* amalgam. There are few who use it not. Its use is so general that it may be called professional: at least its use is not unprofessional.

It appears, then, from this data, that there is more of amalgam used than of gold, at least in weight. As the class of teeth filled with amalgam embrace the larger cavities, it is probable more teeth are filled with gold than with amalgam. There is no doubt the use of amalgam has increased of late. The high price of gold foil since the war has contributed to this. Dentists have been obliged to charge higher, and patients have desired to economize. Many a tooth has been filled with amalgam that had been better filled with gold. And yet better saved thus than lost by utter neglect. And this indicates my own practice. It is gold first. A tooth that can be well filled with it should be, and I so advise. If, from the character of the tooth, or from the necessity of economy on the part of the patient, it will not or cannot be saved, I take the second best thing to do it. This is the general rule. *Honest* intelligence should dictate the dentist; guiding as to his means; wielding his skill; controlling at all times. He has the right of private judgment, and each is called to exercise it in daily practice. He should have the consciousness of an "honest man, the noblest work of God." Doing the best he can to serve his generation, the best his circumstance allows, he acts nobly. "Angels can no more." "Hold fast that which is good." Thus shall one magnify his calling, honor his profession, himself and his God. Such shall be honored by the Father of all.

MILFORD, MASS.

QUARTERLY NOTES.

While so much attention is being bestowed upon the intellectual elevation of the dentist, we hail, with pleasure, any movement aiming at the higher development of his physical powers. The close confinement to which any one in ordinary practice is subjected, must prove deleterious after the lapse of a few years, unless compensated by a rational and regular system of exercise. Gymnasia bring within the reach of the professional man, in large communities, means of animation and invigoration which he cannot neglect without a wanton sacrifice of his best interests. In one way or another he should increase or keep up his strength, and preserve the equilibrium between his mental and physical powers, in order to the harmonious action of each. How much of the ill health, ill work and ill habits of dental practitioners is attributable to the loss of this equipoise? Write, all of it, and we shall not be very wide of the mark. "A sound mind in a sound body," is an axiom too true ever to be forgotten, and yet whole classes continually ignore it.

We fail to attain the best results with imperfect instruments, even when guided by a skillful hand; we therefore change such tools for better. Now, what are our bodily members, but instruments with which the mind is to accomplish its purposes? Shall we not, then, when it is fully within our power, develop for ourselves noble bodies, which shall be willing instruments of great souls. The immortal part of us, cramped and circumscribed like a bark-bound tree, seeks relief for its pent-up life, and strange excrescences break out upon the surface in distorted growths.

We notice the announcement of a prize, (under the direction of a dental association,) for the best essay on preserving the health of dentists, and trust the offer will call forth something of real value.

Again has the American Dental Association met, and the usual fatality has attended the labors of its Publication Committee. We confess to no great disappointment or regret at the result; though it seems a pity that means, which might have been used to excellent advantage, should be frittered away to no purpose. The only volume of transactions published was disgracefully full of blunders; no page being free from them. At the meeting at Chicago, a gentleman eminently fitted for the position was made chairman of the Publication Committee; but the Executive Committee, previously appointed, had already made arrangements for reporting the transactions, and piqued, seemingly, at their publication not being entrusted to some one in Chicago, made no effort, after the adjournment, to hasten the writing out of the stenographic report. In consequence, it was not received by the proper officer, until too late to be put in print for the Boston meeting; not even the Secretary's minutes, (mainly a copy of the report furnished one of the journals,) reached the hands of the committee for months; and at the Boston meeting they were compelled to apologize, (to the ill-disguised satisfaction of some,) for a fault of which only he was guilty, who had the power to remedy it. By the efforts of this individual, famous for his talent in manipulating, the Publication Committee was entirely changed, and their suggestions ignored; a new committee was named, and with every circumstance in their favor of time and place, after the lapse of a year they are obliged to confess that they have brought forth even less than a mouse. Having swung round the circle, the Association has retured to its first love, and we shall probably, some time or other, see a report from the Secretary, as remarkable as his former ones, for the charming negligence with which the parts of speech are thrown about.

The manner of appointing committees in this Association cannot be expected to produce good results. For the past two years the Nominating Committee has been appointed by the President, in direct violation of the Constitution. Whatever this committee recommends is pretty sure to be adopted; but the wisdom of their choice is not very clear, in view of the fact that so few of the committees reported at the late session as to form rare exceptions to the general rule.

The Secretary is justly complained of for never furnishing the chairmen of committees with notice of their own appointment, much less the names of their fellow-members. What honor men can find in accepting positions, whose duties they never intend to perform, we cannot divine. When the time comes that the members of this body shall be willing to do all that they can individually, in such positions as they are qualified to fill, much good will result; but it must ever be the bane of a scientific body to be continually changing its officers, whether President or Doorkeeper.

All that was done last year on the subject of rubber patents, was undone this year; a lovely consistency. The Code of Ethics, which its author was so prominent in violating, was effectually emasculated by tabling the resolution making its adoption by local societies a condition of representation. When some one produces a Code of Ethics, creditable to the dental profession, we shall be happy to aid in its adoption.

Of the published accounts of the Cincinnati gathering, only one is of sufficient length to arrest attention. Occasionally, we find something useful in this, but surrounded by such a mass of rubbish as hardly to pay for the overturning. It is nothing very new or strange to be told of the member who is reported as saying that, "he felt like opposing somebody or something;" this is known to be his chronic condition, without much regard to what the body or thing is. To be in opposition is with him the main point; to be on the right side is quite a secondary consideration. It sounds very natural that "the apostle to the Hellians" should declare "Chemistry is togetherness," however little he may be cited as an example in point. That the late President should "find things mainly interesting because he does not understand them," will strike with astonishment only those who are not acquainted with the grasp of his vast intellect. The researches among the teeth of all nations necessarily give out an ancient odor, the physiology is at par with the facts; both might safely be consigned to an ancient sarcophagus, or be added to the antique collections of some archæological society.

Only those who have watched "our own reporter," in his erratic and pugnacious career, can appreciate the value of the service about to be rendered to the profession by the collection, in permanent form, of that gentleman's scintillations.

This literary flirtation leads to the surmise, that possibly it may result in still higher distinction to the favored object, by his elevation to the conduct of the affairs of the dental universe; the hand that rules that world loves single service, even though unaccompanied by singular ability.

The time has arrived for the opening of the Dental Colleges, and we present them our best wishes for their prosperity, trusting they will remember "Their little hands were never made to tear each other's eyes." The Missouri College presents near a dozen chairs, and has at length secured occupants for the anxious seats; Baltimore still relies on her former reputation; Philadelphia comes out gorgeously with high-sounding titles of great promise to the ear; New York adds to its other new attractions oral and veterinary surgery; and Pennsylvania, not to be outdone in her regard for physiology and hygiene, provides an ample store of Hartshorne for such as may be ready to faint by the way.

No small amount of thanks is due to Dr. Bogue, of New York, for stating, in intelligible language, how to construct an artificial palate. This subject has been bandied about from pillar to post, mixed with so much of unprofessional trickery, that it is a pleasing relief to find some one who can say what is known on the subject, with good sense and good manners. With these explicit instructions, more artificial palates will be made, and with far less trouble than ever before.

The question which most persistently addresses itself to the thoughtful among us is, what does our profession most need for its present and future advancement?

Let the youth who are to succeed the present generation be disciplined into honesty of purpose and of work; let them learn that the height of all excellence is to do one's duty faithfully and durably. It is well to have a high ideal, but to carry it out needs an over-powering conviction of its necessity and its advantage; few people have this, and such as have, are best fitted to discipline others into doing that which they see clearly and feel deeply. It is strange how the power of united action is overlooked by the members of our profession; great as is the good which might be accomplished by the practical feeling, that we all have the one object in view. Were this thought predominant, gradually there would be formed, through the instrumentality, perhaps, of existing organizations, an army of experimenters and investigators, by whom the most opulent results might be achieved, growing at length to a power to which no victory would be impossible. To patient diligence the prize is sure.

UNKNOWN.

Synopsis of Proceedings of the Seventh Annual Session of the American Dental Association.

We propose to present to our readers a short synopsis of some of the most important matters transacted at the seventh annual meeting of the American Dental Association, which was held at Hopkins' Music Hall, Cincinnati, Ohio, July 30th, 1867.

President, Dr. Fitch, in the chair.

The attendance of permanent members and delegates was large, there being one hundred and thirty-six present, nearly every State in the Union being represented. After a prayer by the Rev. Dr. Moore, an excellent address of welcome was delivered by Prof. James Taylor, of Cincinnati, as follows:

"MR. PRESIDENT AND GENTLEMEN OF THE AMERICAN DENTAL ASSOCIATION—The very pleasant duty of welcoming you to the Queen City of the West has been assigned me. We congregate in the same hall in which the American Medical Association so recently held their deliberations.

"It is a matter of no surprise to us, and yet of some congratulation, that the subject of medical specialties has assumed with this conservative body some importance. It depends very much on the Dentist, the Oculist, and the *specialty* of general operative surgery, what shall be the status, and true progress of medical science in the United States.

"In looking back over the rapid progress of dental science for the last thirty years, we feel assured that there is no danger of our being absorbed by the mother of us all, but that the great law of nature will hold good here as well as elsewhere, and that youth, with a good germ of life, will soon outgrow or at least overtake maturity.

"In looking over the curriculum of our Dental Colleges, we are rather disposed to think we shall soon absorb or lay under contribution every department of medical science. We love, venerate and cherish the time-honored profession of medicine. It has embraced, for ages, a vast array of talent. The learned, the great and good, are from year to year adding fresh lustre to her renown. A more noble, self-sacrificing class of men can nowhere be found, and the more we emulate these noble qualities, and the more of her true science we obtain, the higher we shall place the standard of our specialty.

"Mr. President and gentlemen, allow me to revert to the past twenty-five years. We claimed for this city some sixty thousand inhabitants, and a little over thirty years since and this great Western Valley could claim only a half dozen or little more settled dental practitioners. Let me name a Ratre, a Somerby, a Putnam, a Parmly, a Ward, a Hale, and a Rogers. A little over twenty years since and a few of us here in this city, met together and organized the now oldest Dental Association, perhaps, in the world, a still young and progressive society. I know not, Mr. President, but that I may have been selected on this occasion, because I am considered one of the links connecting the present with the past, one of the pioneers of this Western development, not quite yet fossilized. Let this be as it may, we still urge on the car of dental science, rejoicing at every new advance obtained.

"What a change, Mr. President, twenty years has wrought. When I look around upon this assemblage, and see delegates from associations scattered all over our great country; when State, city and county associations are sending up delegates by the hundred, and four or five Colleges are represented, I try to make myself believe that I am growing old; but this is not the case, for others around me, who are my seniors, look young, and I know it is not so much age as vigorous development which has done all this. We are not old, Mr. President. We are yet being developed.

"This association is an organ of our professional body, whose function is the development of dental science. Let us nourish it with so rich a diet that the eliminating organs shall rear a structure enduring as time, built on the solid foundations of immutable truth.

"Having this hope and looking to this end, we now, in behalf of the Mississippi Valley Association, the Ohio Dental College Association, the Cincinnati Association, and such other societies as rejoice in your presence, bid you hearty and cordial welcome.

"We would, Mr. President, through you, extend the right hand of fellowship to all who rejoice in the prosperity of our profession, and who may visit our city on this occasion."

On motion, a vote of thanks was tendered Dr. Taylor for his address.

It was referred to the Committee on Publication.

One of the first acts of the Association was to place the body in a proper position in regard to its action in Boston on the rubber question, which was so generally misunderstood and misrepresented. Dr. Lawrence offered the following resolution, which was unanimously adopted:

Resolved, That this Association does hereby reconsider its action at our last meeting in regard to the Vulcanite Company, and totally ignore the whole subject.

We hope this action of the Association will deter every member of the profession from being governed by the resolutions of the Boston meeting, and that none will give material aid or encouragement to any unjust demands of incorporated companies, whose pretended rights are considered valueless by many of the best legal minds of the country.

An election for officers for the ensuing year having been entered into, the following were selected: for

President.—A. Lawrence, Lowell, Mass.
First Vice-President —P. G. C. Hunt, Indianapolis, Ind.
Second Vice-President.—A. S. Talbert, Lexington, Ky.
Corresponding Secretary.—C. R. Butler, Cleveland, Ohio.
Recording Secretary.—J. Taft, Cincinnati, Ohio.
Treasurer.—W. H. Goddard, Lexington, Ky.

On accepting the position, Dr. Lawrence made a few pertinent extempore remarks, thanking the Association for the honor conferred, and while regretting that one of more executive ability and experience had not been elected, promised to discharge the duties of the office to the best of his ability, in all fairness and candor, without regard to persons or circumstances.

In reviewing the action of Dr. Lawrence, we can safely assert that it was the unanimous voice of the members that the right selection was made, and that his rulings were always made in strict accordance with parliamentary usage, and without regard to persons or circumstances. Instead of disorder and utter disregard of parliamentary law which has characterized some of the meetings of the body in former sessions, due alone to the incapacity of the President, there was the best of order, the dignity of the body was upheld, and a large amount of business transacted in a reasonable time. We can, therefore, hope that the Association will always make as judicious a selection for its chief officer; for upon its choice depends, to a great extent, the usefulness of the body and the interests of its members.

At the evening session, the most important business was the report of the Committee on Dental Chemistry, which elicited extended remarks from several gentlemen.

On the second day, morning session, an animated discussion took place on the proposed amendment to the Constitution, offered by Dr. Spelman the previous year, which was, "To be entitled to representation by delegates in this Association, dental societies must adopt or substantially recognize its Code of Ethics." Drs. Berry, Watt, Spelman, Bogue and Allport favored its adoption, while Drs. Flagg, Fitch, Atkinson and Barker opposed it; the latter gentleman claiming that it was not the province or right of the body to attempt to govern the action of local societies; that those societies that were at present represented could not be affected by the resolution, as several of them had decided *not* to accept the Code of Ethics; that it would be unjust to exact of new societies what the body could not compel those now represented to adopt. These, with many other excellent reasons, were ably presented, and though the amendment was warmly defended, it was tabled by a large vote. Dr. Watt then offered it as a new amendment, to come up for action at the next meeting. We regret that this gentleman did not feel willing to let the subject rest; but it would be well for each dental society to take action upon the matter before the meeting at Niagara, and that delegates and permanent members be fully instructed as to the views of their local societies.

At the afternoon session, second day, the report of the special committee on the disposal of the proceedings of the Association was offered. It recommended that they be published in the dental journals. This resolution elicited considerable discussion, pro and con, several desiring that the Association should publish its transactions as heretofore. The report was finally recommitted.

That much more good could be accomplished by the early publication of the essays and transactions of the Association in our different dental journals has always been our belief; that it would tend to increase their interest and circulation, while it would encourage the writing of essays, as much of the value of papers now offered are lost by their tardy appearance and limited circulation in the profession.

The subject of Dental Chemistry and Dental Pathology and Surgery occupied the attention of the Association during the remainder of the afternoon.

Most marvelous cases were detailed at the evening session, on the subject of transplanting teeth; several stating that after teeth had been out of their sockets for considerable time, they had replaced them, and that union had taken place, *the dental pulps being alive* years afterwards. We thought how unfortunate that these gentlemen did not live during the time of the French Revolution, as possibly they might have induced "immediate union" between the heads and trunks of the luckless victims of the guillotine.

Third Day, Morning Session.—After the reading of the minutes of yesterday, Dr. Taft read a report from the Committee on Circulars to Dentists, relative to students. It stated that the necessary circulars had been sent, to the number of eight thousand, and that it was as follows:

DR. —— ———, DEAR SIR—The American Dental Association, at a meeting held in Boston, beginning July 31, 1866, passed the following resolutions:

"1. *Resolved*, That a committee be appointed to draft suitable suggestions upon the subject of accepting students, and that such suggestions be printed in circular form for the consideration of every dental practitioner in the United States.

"2. *Resolved*, That the expense of such printing and distribution be borne by the Association."

The undersigned, the committee appointed according to the provisions of the above resolutions, are fully persuaded that the time has now arrived when every dental practitioner in the country can and should lend his aid in elevating the status of the profession, to the end that those who are soon to fill our places may be prepared, in a greater degree, to fulfill the reasonable expectations of the public, and hold dentistry in its proper rank among the learned professions.

Our dental colleges have done much, and will doubtless do more; but there is a work for the private instructor to accomplish, that students may be better qualified to enter such collegiate institutions, and graduate with credit to themselves and honor to the profession. It is not only essential that dental colleges exist, but they should be furnished with properly qualified pupils, to insure that success and usefulness contemplated in their foundation.

Relying, then, upon the generous co-operation of our professional brethren, we respectfully submit the following "suggestions" as a basis in "accepting dental students:"

1st. He must possess a good moral character, and at least a good English education.

2d. He must be required to apply himself diligently for three years, including two full courses of lectures in some dental college, to the following studies, viz:

First Year.—Anatomy, Histology and Physiology.

Second Year.—Pathology, Chemistry, Metallurgy and Mechanical Dentistry.

Third Year.—Operative Dentistry, Special Pathology, Dental Medicine and Microscopy.

We further suggest that the instructor examine his pupil in his studies at least twice in every week, and as much oftener as may be convenient, (not, however, including his lecture terms,) and should the student, after sufficient trial, fail to exhibit the necessary talent for our specialty, he should be kindly apprised of the fact, and advised to seek other fields of usefulness.

Practitioners favoring the foregoing, are respectfully requested to date and sign the accompanying paper, and forward to the committee.

A. LAWRENCE, *Lowell, Mass.*,
C. P. FITCH, *New York City*,
J. TAFT, *Cincinnati, Ohio.*

Niagara was selected for the next place of meeting out of several places named.

Dr. John Allen then read an exceedingly interesting paper on the Physical History of Various Nations of the Earth, with special reference to their teeth.

Dr. Allen's paper embraced a cursory review of the character and condition of the teeth of various nations, and commenced with asking two questions, viz: Are not the teeth of Americans worse than those of any other people? What is the cause? Some nations keep their teeth till old age, and lose them as rarely as they do their arms or limbs. In this country, twenty millions of teeth are lost annually from decay. In examining the cause of this loss, it may be stated that the inhabitants of Europe who discard the mineral elements of food, are liable to lose their teeth by decay. The Albanians live on milk, cheese, eggs and boiled maize. Their teeth are fine, and remain good to old age. The mountain tribes of Asia, especially the Tartars, have strong, white teeth. The teeth of the Arabs are white and regular. They eat seldom, and never of animal food.

Dr. Allen next mentioned the inhabitants of the East Indian Islands, Zealanders, &c., as having good teeth, which lasted to old age.

The American Indians, as a general thing, had good teeth, which are large, never decayed, although worn, as in old age, by use. The Chilians, Californians, and inhabitants near the bay, all have fine, well-set teeth. Their diet is farinaceous. The inhabitants of Peru and Patagonia have beautiful teeth, even in old age.

With regard to the bad teeth of Americans, it would be said by the candid dentist, that they were set in narrow, contracted jaws, and were badly decayed. Humboldt said of the Camas, that they had fine teeth, like all people who lead a simple life. No nation that changed their food from the condition in which nature furnished it, had good teeth. Plenty of exercise and fresh air was another cause of the good teeth in the swarthy races.

We have attempted to improve our bread by bolting the flour, but thereby destroyed the mineral elements which go to form the teeth. There are 13,868 mills in the United States; 27,000 men are required to work them, and it requires nearly $9,000,000 annually to change the constituents of our food, and the result undoubtedly is one of the most prominent causes of the destruction of Americans' teeth. Lime is to be found in the outer portion of the grain, and it is needed for the teeth, yet we reject it. It is for the profession of dentistry to do good, by diffusing such knowledge as comes to it through experience and research, to prevent the evil of premature decay and loss of the teeth.

Dr. Allen's paper gave evidence of laborious investigation and research, and will be of value for future reference. It was referred to the Committee on Publication.

Dr. Flagg spoke at some length of the advantages of Morgan's Plastic Gold.

Afternoon Session.—The report of the Committee on Operative Dentistry was read, and remarks were made by Drs. Butler, Palmer and Badger.

Dr. Taft made some remarks on the kinds and use of gold in plugging, and gave it as his experience that rapid manipulations are not good; that good operations require time, and good operators always took time. Drs. Voge, Russell, of Nashville, Barker and Walker took part in the discussion; after which Dr. S. P. Cutler's paper on the Microscopy of the Nerves of the Teeth was read by that gentleman.

We refrain from presenting a synopsis of the paper, as we might, perhaps, do injustice to the gentleman; as many of the positions assumed were new, and at variance with our present adopted theories. The paper was warmly criticised by Drs. Atkinson, Judd, Spalding, Chase and Barker. This paper, and the discussion thereon, were, in our judgment, the most interesting topics considered by the Association. The paper of Dr. Cutler gave evidence of long and patient microscopical investigation, though we did not agree with many of the positions there presented. The most brilliant speech of the session was made by Dr. Atkinson on the subject of Dr. Cutler's paper.

The evening session was occupied with the same discussion.

Fourth Day.—The morning session was taken up with the reports of committees and a lengthy discussion on Operative Dentistry, participated in by Drs. McKellops, Butler, Taylor and others. For the afternoon, Mechanical Dentistry was under consideration.

Fifth Day.—The principal business transacted was receiving reports of committees, and two interesting papers on Dental Physiology and Absorption of Deciduous Teeth, which were referred to the Publishing Committee. After the appointment of certain special committees, the Association adjourned, to meet at Niagara Falls, on the 30th of July next.

G. T. B.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

BY JAMES TRUMAN, D. D. S.

The following resumé of the proceedings of the Association during the past year will, perhaps, be found of interest to many, and serve to correct a prevailing idea that the Pennsylvania Association had ceased to exist as a working body. It was never more alive than at the present, and we believe its future promises good results.

At the annual stated meeting of the Association, held October 3d, 1866, the following were elected officers of the Association for the ensuing year:

President—Dr. E. Wildman.

Vice-President—Dr. Spencer Roberts.

Secretary—Dr. James Truman.

Corresponding Secretary—Dr. E. T. Darby.

Treasurer—Dr. S. Dillingham.

Committee on Membership—Dr. G. T. Barker, Dr. Amos Wert, Dr. John A. Githens.

The regular monthly meeting of the Association for October was opened by Dr. Truman reading a paper on "Interglobular Spaces" in dentine. The Association not being prepared to discuss the subject-matter of the paper read, Dr. Arrington was called upon to present a new form of gold, (Lamm's gold,) prepared by a gentleman in New Orleans. It was claimed for it, first, that it was superior to sponge or crystal gold, and for many purposes superior to foil; second, that it would work readily under moisture; and third, that its cohesive properties exceeded those of any gold now used. It was admitted to have the defect of crumbling, but this the manufacturer expected to be able to overcome.

An informal expression of opinion followed, at the suggestion of Dr. Arrington, on sensitive dentine. Dr. Barker had secured the best results in the use of carbolic acid. Had found some advantage in the use of chromic acid. He believed the sensitiveness was due to the pressure on the nerve fibres. Was decidedly of the opinion that Dr. Richardson's apparatus, when properly constructed, would be a powerful agent in the treatment of sensitive dentine.

Dr. Arrington had never tried cold application, but had experimented to some extent with Dr. Alport's mode of treating the pulp, and in his hands it had proved an entire failure.

A spirited discussion followed on this subject, participated in by Drs. Barker, Buckingham, Truman, and others.

The monthly meeting of November was opened by a paper on anæsthetics by Dr. Barker. After a general allusion to the well known articles used, the Doctor called special attention to "Richardson's Spray Producer" and its effects. He entertained a high opinion of its merits as an anæsthetic agent for the extraction of the anterior teeth, but considered its greatest value would be found in the application to minor surgery.

He presented, also, an interesting case of cleft palate—a lad of thirteen years of age. A description was given of the mode adopted to procure the impression, and the manner of preparing moulds.

The patient was exhibited with the hard and flexible rubber plates *in situ*, and, although but recently introduced, a marked improvement in the articulation of sounds was evident.

Dr. Wildman presented a case of irregularity he had recently successfully treated, and explained the appliances adopted to effect it.

The different subjects presented were freely commented upon by Drs. Buckingham, Barker, Truman and Aspinwall.

At the monthly meeting of November, 1866, Dr. Buckingham read a paper on the "Reimplantation of Teeth." (The reporter was necessarily absent from this meeting, and failed to procure a report.)

At the monthly meeting of January, 1867, Dr. J. D. White read a paper entitled "Glasses in Dental Operations." He disapproved of strong light, but considered glasses of proper magnifying power a benefit to the operator.

Drs. Barker, Buckingham, Githens, and Truman gave their views on this subject. The general conclusion seemed to be, that the light in dental operations should not be too strong, neither should it be too much diffused over the operating-room; but should come direct to the point where it was most required.

At the meeting of February, 1867, Dr. H. M. White presented a paper on "The Growth of the Alveoli in Regulating Teeth." The aim of this paper was to prove that a deposition of bone takes place in the socket of a tooth when the tooth has been forcibly moved from its original position. This view had been controverted by distinguished authorities; but the Doctor was satisfied, from long observation, that hypertrophy could be produced, as well as atrophy.

The discussion that followed the reading of the paper took in its range the whole subject of regulating teeth, and was participated in by Drs. H. M. White, Githens, Wert, Buckingham, Wildman, W. H. Trueman and J. Truman.

Dr. W. H. Trueman presented a singular specimen of a tooth with an abscess at the centre of the fang, from which a minute perforation extended through the cement and dentine to the pulp cavity.

At the meeting of March, 1867, Dr. W. H. Trueman read a paper on "Articulation of the Teeth." This article contained many points of interest on the arrangement of artificial teeth, taking some positions not generally held, in regard to the best mode of setting teeth in their relations to the alveolar ridge.

Dr. Wert followed in some remarks in continuation of the subject. He was satisfied that teeth arranged on the lower jaw, with an inclination inward, added materially to the firmness of the piece in the mouth.

Dr. Buckingham thought there was danger in setting teeth too far out. Agreed with the author of the paper read, that grinding off the prominent points of artificial teeth was a benefit. To procure a correct "bite" in arranging the preliminary steps for an artificial set, he invariably requested the patient to swallow, the tendency of which was to throw the jaws in natural position.

Dr. Barker had found great benefit from the use of "plumpers"—extension of rubber to throw out the cheek—when there was an inclination to bite the cheek in mastication.

Dr. Peirce stated that some dentists invariably bring the points of their teeth to a flat surface, grinding them off until all points are obliterated. He did not believe that plates were held up by suction entirely; patients accustoming themselves to retaining the piece in place, to a considerable extent, by the aid of the tongue.

Dr. Wildman thought the line of force required the lower teeth should be set in, and the upper nearly straight. The line of force striking inside of the base on the lower, caused the teeth to hug the jaw more closely than they would do were they placed more directly over the alveolar border. At the same time, if the line of force struck outside the border of the upper jaw, it would cause the piece to tilt.

The discussion was further continued by Dr. Githens and others.

At the monthly meeting for May, 1867, Dr. Darby apologized for not being prepared with a paper, but made some general remarks on the subject he had intended to write upon, that of "Gold Foil and the mode of using it."

Gold foil, in his judgment, was not entirely pure. That for dental purposes should be as free from alloy as possible to get it. The various modes of preparing foil was then briefly alluded to, the rope, tape, cylinder, &c. He had recently adopted more of the cylinder and tape form in his practice than formerly. He had nearly abandoned the use of adhesive foil, as he had found it to scale, and in time became very defective. Considered cylinders as one of the best forms for filling cavities.

Dr. J. Truman remarked that he was astonished to hear the remarks in opposition to the use of adhesive foil from the gentleman offering the introductory remarks. To adhesive foil we owe the present advanced position occupied by the operative department. In his judgment, formed after an extended experience in the use of all the different forms of foil, he was satisfied that to ignore the use of adhesive foil was equivalent to abandoning teeth to entire destruction that could alone be saved by its use. It was exceedingly discouraging after the many years of labor, mental and physical, devoted to filling teeth by some of the most advanced minds in the profession, that we should find this constant effort to resuscitate modes long since condemned as ineffectual for general work. He believed one great difficulty in the use of adhesive foil had been that it had been used without a proper judgment of its capabilities. It was often impossible to use it at the edges of cavities, always used at this point with some risk, as there was always more or less uncertainty as to the perfect adaptation of the foil to the wall. He therefore preferred foil for this portion that possessed slight adhesive qualities, while for centres of cavities this peculiar property might be carried to its fullest extent.

Dr. Barker was satisfied adhesive foil had been a most powerful lever in the advancement of the profession to its present position. He could not comprehend why it was that every year we were obliged to go over the same subjects, and discuss modes of practice that had been long settled as inadequate to meet the demands of the present time. He considered the superior work now done with adhesive foil as the best answer that could be given to those who thought of returning to the use of non-adhesive foil. He had used Lamm's gold extensively, but had not been able to work it under water, a quality claimed for it by those who introduced it. Had used Morgan's plaster gold, introduced by Hall & Ellis, and considered it valuable.

Dr. W. H. Trueman coincided with the views expressed by Dr. Darby. He could make a better filling by the use of cylinders and non-adhesive gold than with any form of adhesive foil.

Dr. Buckingham was satisfied the variety of opinion expressed was more a difference in our understanding of what we meant by adhesive foil. He thought no one used a foil now strictly non-adhesive. He took middle ground on this subject, believing that both characters of foils have their uses, and should be used with judgment.

Dr. Wildman did not think that the adhesiveness of foils was produced by alloying the metals.

At the stated meeting in May, 1867, the following were elected delegates to attend the meeting of the American Dental Association, to be held in Cincinnati in August: Drs. Spencer Roberts, J. H. Githens, A. Wert, E. T. Darby, W. H. Trueman, Wm. Smedley, E. Wildman, G. T. Barker, J. D. White, H. M. White, C. C. Williams, Jesse C. Green, Chas. Moore, J. J. Griffith and J. Truman.

Adjourned until the second Tuesday in September, 1867.

At the monthly meeting of the Association, held in September, 1867, on motion of Dr. J. Truman, the subject of Dental Associations, and the best modes of organizing them, was taken up. The subject was freely discussed, and a general dissatisfaction expressed with the present imperfect mode of conducting such organizations. The expression of this feeling was so universal, that, on motion, a committee consisting of Drs. Truman, Buckingham and Barker, was appointed to prepare a plan that should combine greater efficiency in conducting observations, and also tend to improve the social feeling amongst members. The committee to report at the annual meeting, the first Tuesday in October.

At the annual meeting of the Pennsylvania Association of Dental Surgeons, held Oct. 1st, 1867, the committee to whom was referred the subject of a change in the mode of conducting our meetings, made the following report, which, upon a full discussion of its merits, was adopted as a portion of the By-Laws of the Association:

REPORT.

ARTICLE 1.—The members of this Association shall be divided, according to their own selection, into five divisions, termed Sections.

ARTICLE 2.—The Sections shall be named as follows: No. 1, Section of Chemistry; No. 2, Pathology and Therapeutics; No. 3, Mechanical Dentistry; No. 4, Microscope and Dental Histology; No. 5, Operative Dentistry.

ARTICLE 3.—It shall be the duty of the Section on Chemistry to thoroughly examine any subject referred to them. To conduct all necessary experiments, and to take charge of whatever legitimately belongs to that branch, and make regular reports of their proceedings to the Association.

ARTICLE 4.—It shall be the duty of the Section on Pathology and Therapeutics to investigate any pathological conditions that may be presented to the Association, and to carefully examine therapeutic agents, experiment with the same, and report the results to the Association.

ARTICLE 5.—The Section of Mechanical Dentistry shall take charge of all inventions introduced to the profession, examine and experiment with the same, and report results to the Association. They shall also make such original investigations as will best advance the interests of the profession.

ARTICLE 6.—The Section on the Microscope and Dental Histology shall receive all matters requiring microscopical examination; shall carefully and thoroughly test the same and report to the Association. They are expected to make complete examinations on all mooted questions in Dental Histology, and also make original investigations for the further development of this branch of science.

ARTICLE 7.—The Section of Operative Dentistry shall take in charge all new appliances or material that may be introduced, experiment with the same, and report to the Association. They shall also make such original investigations as will best advance this branch.

ARTICLE 8.—All reasonable expenses incurred by these several committees in making examinations shall, when properly audited by the Association, be paid out of its funds.

ARTICLE 9.—The Sections shall be composed of a chairman and not less than two other members.

ARTICLE 10.—No chairman shall be eligible to the position unless fully qualified to arrange the work of the section, and to lead in conducting its business.

ARTICLE 11.—The election for chairman shall take place at the annual stated meeting in October, and they shall serve for one year from the date of their election.

ARTICLE 12.—The Sections shall at each monthly meeting of the Association, be called in order by the President, and will be expected to report on the different subjects entrusted to them.

ARTICLE 13.—Any Section failing to make a report for two consecutive meetings shall be considered disqualified for work, and shall, upon majority vote of the Association, be disbanded, and a reorganization effected from the remaining active members.

ARTICLE 14.—Sections shall meet at least once a week at the residences of the members.

Respectfully submitted,

JAMES TRUMAN,
GEORGE T. BARKER, } *Committee.*
T. L. BUCKINGHAM,

Editorial.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

We desire to call special attention to the report of the Committee on Reorganization, which will be found appended to the report of the proceedings of the above association. Whatever may be the result of this action in the future, the effort is certainly an attempt in the right direction, and, if properly sustained and carried out, must be productive of greater results than have heretofore been obtained under old modes.

It must, we think, be apparent to all readers of our JOURNAL that the proceedings of dental societies amount to but very little. They give us an ample flow of words with but few facts, and those that are of value are presented in a form that deprives them of a large portion of their value.

We are not of that class that professes to believe that all is known in dentistry that need be known. The field, though perhaps limited in comparison to others, has much in it that needs clearing up. It certainly is not to our credit that in the limited field we have, so large a portion should remain unexplained. It is to make an effort at original investigation of many of these difficult questions, that the Pennsylvania Association has adopted this change, and we certainly hope for the largest success in the effort. †

ESSENTIALS OF THE PRINCIPLES AND PRACTICE OF MEDICINE, a Hand-Book for Students and Practitioners. By Henry Hartshorne, M. D., Professor of Hygiene in the University of Pennsylvania, Auxiliary Faculty of Medicine, Professor of Physiology and Hygiene in the Pennsylvania College of Dental Surgery, &c., &c. *Philadelphia: Henry C. Lea.*

The professional public are greatly indebted to the author for one of the most practically useful books ever presented to the student or practitioner; indeed, a more admirable summary of general and special pathology, and of the application of therapeutics to diseases, we are free to say has not appeared for very many years. It is not too much to say, that it is a representative of the actual state of medicine, as taught and practiced by the most eminent physicians of the present day, and hence is particularly invaluable for those just embarking in the practice of general physic or its branches. To give the reader a more perfect idea of what it contains, we should be glad to copy the whole table of contents, and make some extracts from its pages, but our limits forbid. The work is fortunately not so voluminous as to be objectionable to either the pressingly engaged physician, or the medical or dental student. In style, the work is remarkable for its clearness and simplicity. G. T. B.

THE

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REGULATING TEETH.

BY C. A. MARVIN, D. D. S.

[CONTINUED.]

I come now to consider the *third* general rule, of those heretofore enumerated, to be observed in operations for regulating natural teeth, viz.:

The proper articulation of the teeth for better mastication.

This is more important than at first sight appears. It is an end too often ignored by dentists, as may be seen by an examination of the artificial dentures worn by people who come under our observation.

How many are distinguished by perfect articulation? How many, when closed, will catch and hold a strip of thin paper, so that the effort to draw it out will tear it? Very few. How, then, can the process of mastication be well performed? The natural organs, when in a normal state, are so formed that the grinding surfaces of all the teeth, when occluded, touch at the same moment, and with equal force, upon each other. The projections of one enter the depressions of its antagonist, thus cutting the food to pieces with equal thoroughness in all parts of the mouth.

A moment's reflection will convince any one of the vast importance of this arrangement. Of the distinct operations, mastication, deglutition, digestion and assimilation, by which food is converted into animal substance, and strength becomes the result, the most important is the first. Nature has assigned to each part of our physical machinery a distinct duty. To the mouth, mastication and insolivation; to the stomach, digestion, *i. e.*, the dissolving of the swallowed mass, the separation of the nutritious from the useless; to the absorbents, the appropriation of the nourishing elements, and the dispatching of a portion to each needy part of the organism. If the first operation, mastication, be imperfectly done, and the food be swallowed before it is thoroughly ground, an additional duty is imposed upon the stomach, already assigned a sufficiently laborious task. What wonder if it rebel? Overburdened, but yet faithful, it tries to accomplish its double duty. At first it may succeed very well, but soon its ability is exhausted, and the work is imperfectly performed. What ensues? Murmuring against the unjust imposition. Pain and distress supervene. That great destroyer of peace and health, dyspepsia, instals itself therein. And now the universal law of compensation asserts itself; a disordered stomach, a fetid breath, a loss of strength, all succeed, and the penalty of violated duty is inflicted upon the offending organs, the teeth. "The chickens have come home to roost." It is but simple justice. People will not see it, however. They wonder why they should have such poor teeth. Just here comes in the duty of the dentist. It is a double duty. Not only must he repair the damage by a skillful use of his instruments, but it is equally his duty to inform his patient that the failure to masticate his food properly has been the prime cause of the decay of his teeth. Nor should he be timid in asserting this truth. He will doubtless be met, in many instances, with a stout denial of the charge. "I spend much time in eating," he is told, "and still my teeth decay. I have no dyspepsia, am perfectly well, still you see my teeth are poor. Your theory, therefore, Doctor, as far as regards me, is manifestly wrong." A diffident dentist will, just at this point, yield the discussion, and, as a consequence, what he has already said is wasted, and he esteemed an unsound *notionist*. Yield a great truth, like the one just stated? Not at all.

What matters it if some men have cast-iron stomachs, and gastric juice as strong as aqua regia? All men have not. And it is no inducement to a wise man to disregard all precautions because another has done it and escaped the danger.

There may be, and doubtless are, many causes of decay in teeth, but it is certain that this is one. The evil effect of taking into the stomach half masticated food is not, however, confined to the teeth. Who will enumerate the ills that proceed from indigestion? Their name is legion. This being so, how important becomes the duty of him to whose care the grinding machinery is committed. If he leave it in an imperfect condition, is he not, to just the degree of imperfection, responsible for the results? If his patient's teeth are tender—sore, as they say—he will naturally use them as little as possible. If several of them are wanting, by just so much is his ability to grind his food reduced. If he has his teeth, but they do not properly articulate; if some touch and others do not, and still others meet in a single point, the result is imperfect mastication. Crushing the food is not mastication. It must be *ground* up; the particles separated. This cannot be done by *flat* surfaces coming together, as we often see in artificial teeth, nor by broken and occasional antagonism; it requires the close shutting together of all the teeth in the *sutural* form of union. This should be the aim in inserting artificial teeth, and, of course, the same end should be sought in regulating natural ones.

To accomplish this will, in some cases, be very difficult. Perhaps it cannot be gained at the time the operation for irregularities is being performed. But patience, fellow-practitioner! The employment of wise means, and persistence in their application, will secure the end desired. Nature assists the skillful operator. Let me instance a difficulty. The upper arch is greatly contracted; the molar teeth only meeting their antagonists. The bicuspids, cuspids and incisors all shut inside the lower teeth, none of them touching, none of any use in mastication. What is to be done? Spread the upper arch, of course.

When this has been done so far as to bring the bicuspids out to a proper position, it is found that the first bicuspids, for instance, are too short; they will not reach the lower ones. This evil cannot be remedied at once. It will not do to seize the tooth and drag it out of its socket far enough to reach its antagonist. But it must come done. How then? Coax it. A ring of rubber left around its neck will produce an irritation sufficient, oftentimes, to accomplish the purpose. But sometimes this will not do. If the mere absence of antagonism will not induce its protrusion, which result often occurs, particularly in adult life; if irritation at the neck is equally unsuccessful, it still can be done by gentle traction.

Make a plate of rubber or metal, with a reversed gallows under the tooth. To this gallows attach the tooth by an elastic band of slight strength, and the requisite length can soon be gained. This is a delicate operation, and must be carefully performed. No "heroic" method will do here. Gentle means, often intermitted, again resumed, the effect carefully noted, and *a knowledge of what is being done*, these will insure the desired result. And even *one* case of irregularity, successfully brought to a condition which is natural, symmetrical and useful, will amply repay the practitioner for all the study, pains and skill its treatment has cost him.

BROOKLYN, L. I.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

BY JAMES TRUMAN, D. D. S.

At an adjourned Stated Meeting, held October 15, 1867, the following members were appointed to fill the positions of chairmen of the different sections provided for under the resolution adopted at the previous meeting, viz:

Section of Chemistry, ...	Dr. T. L. Buckingham, *Chairman*.
Section of Pathology, ...	Dr. Geo. T. Barker, “
Section of Mechanical Dentistry, .	Dr. E. Wildman, “
Section of Microscopy, ...	Dr. James Truman, “
Section of Operative Dentistry, .	Dr. C. N. Peirce, “

On motion of Dr. Truman, Plastic Gold was referred to Sections of Chemistry, Microscopy and Operative Dentistry, to report as soon as necessary examinations could be made.

At the regular Monthly Meeting, held October 15, 1867, Dr. Wildman presented casts of medals made from chloride of magnesium mixed with oxide of magnesium, forming a hard compound. The doctor had, however, not found it to answer his expectations. It will set in from two to four hours, requiring twenty-four hours to obtain full hardness. It will take any color, and receives a very fine impression. Several colors were exhibited, but several of them presenting cracks.

Dr. Truman introduced the subject of bleaching discolored teeth, and desired it should be referred to the proper committee. Recent experience had more fully confirmed him in the value of the process adopted by him several years ago, of introducing in the carious cavity chlorinated lime in connection with an acid. He had practised this mode for over six years with universal good results.

Dr. Buckingham acknowledged that while the process adopted by Dr. Truman was the best, he was not satisfied it would bleach the tooth. In his hands it had proved a failure. He was not certain that chlorine was the bleaching agent. In his judgment most of the bleaching was due to cleansing the tooth and preventing the decomposed particles from penetrating and filling up the dentinal tubes. He believed adding an acid to the chloride of lime, the best way to liberate the chlorine, and could not believe that any injury could result to tooth structure from its administration. In answer to a question, whether he had ever tried bleaching by the use of an acid in connection with chloride of lime, he replied that he had not, but had used chloride of lime alone.

Dr. Truman considered Dr. B.'s objections and experiments by no means conclusive. They were in direct opposition to his own experience and experiments covering some years of practice. The assertion of Dr. B., that cleaning out a tooth and closing the dentinal tubes would bleach tooth was wholly untenable, and unsupported by fact. That the dark olor of the tooth would be changed somewhat by the introduction of the old was true, but that the discolored matter in the tubes would bleach white by being let alone was, in his opinion, an impossibility. He insisted upon the importance of strictly following directions given in bleaching by his method. The fangs must be carefully filled before any attempt at bleaching is made.

Dr. Price expressed his gratification that this subject had been introduced. He had successfully bleached with chloride of lime in three months care, but had never used an acid in connection with it.

Dr. Githens instanced a case successfully treated in his practice. He hoped the subject would be continued, as it was one of great importance.

Dr. Truman was in hopes the appropriate Section would take up this subject, and let us have the matter settled one way or the other. If the mode he had introduced, after careful experimenting, could not be sustained by further investigation, let it go. He had, however, entire faith in its standing any tests that might be given.

At a Monthly Meeting of the Association, held November 10th, 1867, Dr. Wildman, chairman, called for reports from the chairmen of the different Sections. That of Chemistry, through the Secretary, Dr. W. H. Trueman, made a partial report on plastic gold, but not having concluded their experiments, the subject was continued in their hands.

The chairman of Microscopic Section reported progress in the same investigation.

On motion of Dr. J. Truman the subject of plastic gold was taken up for the evening's consideration. He had used it to considerable extent, but had not confined himself to either Morgan's or Lamm's gold. He was not at all satisfied with the appearance of the fillings made with this material. Exceptional cases promised well. The material, at least some that he had, underwent a change in its character by being kept, resembling somewhat the character of brown sugar. He had no means of deciding that this change took place in the tooth, but the indications were that such was the fact. The assertion that it would work under water had not been sustained by experience.

Dr. Peirce had used Morgan's gold to considerable extent, but preferred foil. He thought some cavities could be filled better with plastic gold than with foil.

Dr. Buckingham believed plastic gold had its uses. He had more success, he thought, with it where he used foil at the edges and plastic gold in the centre of cavities. Had had great difficulty in forming a perfect edge with this material, hence preferred foil at this portion. The uneven character of the plastic gold had, with him, been a cause of trouble; some, all that need be desired, others, resembling a mass of clay.

Dr. Boniwille had had no experience in the use of plastic gold of any make. He had used Abbey's gold, No. 5, for fifteen years, and could do with it, by gradation of heat, as much as could be accomplished by plastic.

Dr. Wildman had used Morgan's gold to considerable extent, and was now watching the fillings placed in with it with considerable anxiety. He had found that it lost plasticity by exposure to the air. Freshly prepared, it will unite readily, but, if it be allowed to remain some weeks, this cannot be done. Heating will renew this property. It is certain that a deposit of some character affects its cohesive property to a greater extent than gold foil.

Dr. Buckingham had made several tests to determine its packing properties at the walls of cavities. It was a fact, that fillings discolored, but this he attributed to bad work. He considered solidity more important than finishing; important as that was to the perfection of a filling, he did not believe it possible to make a finish upon the surface of fillings so that they would present an entirely smooth surface. The most highly polished fillings, under the microscope, exhibited a surface covered with scratches.

Dr. Wildman did not believe plastic gold could be placed in the cavity by the stuffing process and make a good operation. It must be used in small pieces, large ones arch over, and the filling will surely, in time, disintegrate.

Dr. Githens spent as much time in packing plastic gold as he had ever taken with foil. So far, the fillings put in with it were more satisfactory than with foil.

Dr. Wert had not changed the opinion expressed by him at a former meeting. He had not been able to make as good a margin with plastic gold as with foil. It was brittle, and would break away at the edges under the burnisher. It will not work under water as a rule. For a submarine filling, foil is much better.

Dr. Davenport had for some years been trying to secure perfect results in filling. He thought we expected too much from plastic gold. His experience with it had led him to the conclusion, that it required the same care as foil in manipulation. In using the latter, he preferred the wedging process, a mode he believed now generally adopted. In his judgment, operators were not careful enough with the margins of cavities. With an equal amount of time and care, he thought good fillings could be made with either character of gold.

Dr. S. Roberts had strongly committed himself about a year ago in favor of plastic gold, but was now well satisfied, by his experience in its use, that foil was better for all purposes.

Dr. Boniwille was so well satisfied with the cohesive property of foil, that he had carried this mode of filling to tin, and could make as comparatively good fillings with this metal as with gold.

Dr. Truman protested against the idea put forth, that the mode generally adopted in filling, was by the wedging process. He could not regard this mode as the one calculated to produce the best results.

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At a Monthly Meeting, held December, 1865, the following reports on plastic gold were received, and on motion, accepted:

REPORT ON PLASTIC GOLD.

SECTION OF MICROSCOPY AND DENTAL HISTOLOGY.

The Microscopic Section to whom was referred the so-called plastic gold for examination, would report, that they have had several meetings of the Section, and submitted Watt's crystal, Lamm's and Morgan's plastic gold to careful observation.

The points aimed at in the investigation were—

1st. What differences existed in the varieties of crystallized gold?

2d. Whether any foreign substance was combined with it?

3d. Whether the crystals could be as compactly placed at the surface of the walls as gold?

4th. Whether, in finishing, the crystals can be reduced to a perfectly plain surface at all parts?

In regard to the first point, whether any differences existed between the different kinds offered to the profession, they unanimously agreed, after repeated and careful examination, that the three first-named—Watt's, Lamm's and Morgan's, presented so nearly the same crystalline structure, that, if any difference existed, it was not perceptible by this method of observation. Their conclusion, therefore was, that they were all essentially the same in character, though probably produced by different modes.

In regard to the second proposition, whether foreign substances could be found mingled with the gold, the examinations were rendered more difficult, it not being possible always to determine the character of objects seen, until other means for testing had been brought into requisition. Hence, this Section was necessarily obliged to refer to Section on Chemistry to test for iron and oxalic acid, supposed to be mingled with the crystals. They will doubtless give the result of their labors in their report.

The third proposition, whether the crystals could be compactly placed at the walls as gold foil, was a matter of great importance in judging of the relative merits of the two kinds of gold, plastic and foil. The examinations were made on fillings placed in a perforated, hardened and highly polished steel plate, arranged in such a manner that the filling could be readily removed and examined.

A filling of Lamm's gold was carefully packed by a member of the Section, who spent much time in endeavoring to secure a perfect operation. The microscopical examination of this filling exhibited an external surface equally as good as foil. The periphery of the filling, at the edge of the cavity, was equally perfect with the centre, the crystalline structure being entirely removed. This, however, the operator reports was not attained without a large expenditure of time. The gold at the bottom of the cavity did not present the compact structure that a foil filling exhibited, made under similar circumstances, and in the same cavity, the crystals being almost as prominent as in unworked gold.

The fourth proposition is, therefore, answered, that if sufficient labor be bestowed upon it, a surface equal to gold foil can be made. But this can only be accomplished at the periphery of fillings by an amount of labor largely in excess of that required for foil in similar positions.

The credit of preparing the small steel plate to properly carry out the aforementioned experiments, and others performed by the Section of Operative Dentistry, is due to Dr. T. L. Buckingham.

The fillings were made by the Chairman of Operative Dentistry, Dr. C. N. Peirce, and the Chairman of the Microscopic Section, Dr. Jas. Truman. The former operating with Lamm's gold, the latter, gold foil.

A careful comparison of the difference in weight, if any, was made by a third and disinterested party, with the result, that neither filling contained more gold than the other; in other words, no more plastic gold could be packed in a given space than gold foil.

To sum up the results deducible from these observations, we think it has been proved:

1st. That no visible difference exists in structure between the gold prepared by Watt, Morgan and Lamm, under the microscope.

2d. That some foreign matter is combined with it, but whether sufficient to produce injurious results, your committee are unable to determine.

3d. The most important part of the filling, the surface and edges, can only be made reliable in preserving the tooth, by labor greatly exceeding that of foil, and it is this difficulty that, we have reason to believe, causes so many failures at the periphery of these plastic fillings.

Signed, JAMES TRUMAN, *Chairman.*

To the President and Members of the Pennsylvania Association of Dental Surgeons:

The Chairman of your Committee on Operative Dentistry would respectfully submit the following

REPORT.

On the evening of November 30th, the Section met, organized, and appointed Dr. E. T. Darby as Secretary. Six members were present. Sponge, plastic, shred or crystal gold being under the consideration of the Microscopical and Chemistry Committees, it was also made the subject for the evening. Its availability as a material for successfully filling teeth was considered in all its bearings; and while there was much diversity of opinion with reference to its merits, as compared with gold foil, all agreed that it was, in the hands of good operators, with moisture entirely excluded, susceptible of being made into a compact and durable filling. But, like gold foil, there was a want of uniformity, the packages differing much in their manipulative qualities.

Two of the members were using it exclusively in their daily practice, and expressed themselves as being much better satisfied with their operations than when performed with foil, believing that it required less time and labor to attain superior results.

The other members present had used the different preparations to a limited extent, and while three of them had obtained results quite satisfactory, they had all abandoned it and returned to the use of foil, with the conviction that, in so doing, both time and labor were saved, and results improved.

One member had used it with many misgivings, and had not, as yet, found favor with it; thought that it took equally as much labor to make a good filling as with foil, with a result not as satisfactory, and believed the cohesion no better, if as good as that of foil. He related a case where he had taken especial pains in filling a tooth with it for a child, who returned in a few days with half the filling removed or destroyed in mastication, and the remaining portion rapidly disintegrating, it being readily removed and divided with an excavator, clearly showing a want of cohesion; therefore he would not trust it in masticating surfaces with the knowledge he now had of it.

The Committee were very agreeably surprised with successfully reducing to a thin plate, by means of the hammer, a filling consolidated by one of their number, of the gold under consideration: showing conclusively that, under favorable circumstances, it could be made to cohere as finely as any other preparation of gold.

In submitting the above report, your Chairman is well aware of the liability to error, in giving opinions based upon so limited an experience, for it is not unfrequent, that a more extended time will condemn what at first seems to be a very desirable article; and so, too, is the opposite true, what at first appears to be a failure, is found, by better acquaintance with the manipulative process, to be not only desirable, but really superior.

C. N. Peirce, *Chairman.*

REPORT OF SECTION ON CHEMISTRY ON LAMM'S AND MORGAN'S CRYSTALLIZED GOLD.

The Section have held a number of meetings to examine the subject referred to them, viz: Morgan's plastic and Lamm's crystal gold.

Their attention was first directed to detect the presence of free acid, but after a number of careful experiments, frequently repeated, they have not been able to detect the least trace of acid by any chemical analysis. Neither litmus paper or a solution of litmus, a very delicate test for acid, being in the least discolored or affected.

In examining Morgan's gold under the microscope, a number of small white crystalline bodies were found mixed through it. It was suggested they might be oxalic acid, and experiments Nos. 8, 9 and 11 were performed to test the truth of the supposition. It was found impossible to detect the presence of this acid in a gold solution. The re-agent employed (any of the soluble salts of lime may be used) does not act in acid solutions, unless the acid is neutralized by ammonia. In a solution of gold, the gold is thrown down by the ammonia in the form of a precipitate, so nearly resembling that of oxalic acid, that it is impossible to distinguish them when together. Crystals of oxalic acid exhibit the same appearance under the microscope as the impurities present by the same mode of examination.

It has been asserted that crystal gold contains iron, and upon this point considerable time and labor has been expended.

The first experiments performed appeared to indicate it was present in large quantities, but these were soon found to be inaccurate, the effect being produced by the decomposition of the re-agent. It has been found a very difficult matter to definitely detect iron in the presence of gold. They are both affected by the same re-agents. The solution of gold being always acid, frequently decomposes the re-agent, and renders the test unreliable Any attempts to neutralize the solution precipitates all the metals present; the precipitate of gold being so largely in excess that all other metals present are completely hidden from observation.

The experiment marked No. 1 is considered the most conclusive on this point. The precipitate here indicates iron, but this may be due to the precipitation of the gold, or to a slight decomposition of the test While it is possible there may be portions of iron present, it must be in such minute quantities as to be almost imperceptible; but even supposing it should be present in small quantities, what injurious results could possibly be produced?

These examinations have included foils from several of our best manufactures, but no difference could be observed between them and the crystallized gold. With the exception of the crystallized bodies found in

Morgan's plastic gold, they all seemed equally pure—not the slightest trace of silver or copper being found in either of them.

There is a marked difference in the action of some of the usual tests of iron in solutions of gold. The sulpho-cyanide of potassium—a very delicate test for the sesqui-salts of iron—gives to three ounces of water, containing a single drop of solution of iron, a blood-red color. It gives, with the gold solution, an orange precipitate with milky color.

Tannin gives, with one drop sol. proto-sulphite of iron in two ounces of water, a very dark solution, almost black; while with one drop of gold solution in the same quantity of water, it gives a deep wine color.

The experiments which are detailed are not all that have been made; those only are reported that presented the most important and interesting results. Very many have been tried of which no note has been taken.

Attention is called to Nos. 4, 10, 12, 14, 17, to show the extreme delicacy of some of the reactions.

EXPERIMENTS.

BY DRS. T. L. BUCKINGHAM AND W. H. TRUEMAN.

1. A solution of gold neutralized with carbonate of soda, until slightly alkaline and slightly acidulated with acetic acid, tested with ferro-cyanide of potassium, gave a dark green solution, approaching black. The solution was of a deeper color than No. 2, but precisely the same as Nos. 6 and 7, with little dark-blue flocculi present.

2. Aqua regia treated in the same manner, and tested with ferro-cyanide of potassium, gave a very slight greenish-yellow solution.

3. Aqua regia (not neutralized) treated with ferro-cyanide of potassium gave a light-green solution with a little blue precipitate.

4. One drop of a solution of the proto-sulphate of iron in two ounces of water gave, with tannin, a very dark-purple color.

5. One drop of the same solution, in the same quantity of water, gave, with ferro-cyanide of potassium, a light-blue solution.

6. Aqua regia, same as No. 2, gave no test with ferri-cyanide of potassium. Greenish-yellow solution, same as No. 7.

7. A small quantity of gold solution, the same as No. 1, but not neutralized, gave no test with ferri-cyanide, P. Greenish-yellow solution, the same as No. 6.

8. A solution of oxalic acid, tested with sulphate of lime, gave a copious white precipitate; 8 and 9 precisely alike, rather more clouded than 11, but in other respects the same.

9. A solution of oxalic acid, tested with chloride of sodium, gave a copious white precipitate.

10. The $\frac{1}{100}$ grain of gold, in 2 ounces of water, gave a very decided test with proto-chloride of tin. Solution a straw color, inclined to brown.

11. Oxalic acid in aqua regia gave a heavy white precipitate with chloride of calcium, upon the addition of a little ammonia. Solution milky, white precipitate at bottom.

12. The $\frac{1}{250}$ of a grain of iron, in solution in aqua regia, gave a green precipitate with the ferro-cyanide of potassium. Solution green.

The above experiments were made on the evening of November 23, and their appearance noted. They were again examined three days afterward and the color given as above.

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13. A small quantity of gold solution gave, with sulpho-cyanide of potassium, an orange precipitate with a milky solution.

14. One drop of a solution of gold in two ounces of water gave, with a solution of tannin, a deep wine color, showing it to be a very delicate test for gold.

15. One drop solution of proto-sulphate of iron in two ounces of water gave a precipitate with carbonate of soda.

16. Gold solution gave no precipitate with carbonate of soda.

17. Sulpho-cyanide of potassium gave a blood-red color to three ounces of water, containing a single drop of solution of iron.

T. L. BUCKINGHAM, *Chairman.*

GOLD FOIL.

BY DR. J. P. H. BROWN.

From the fact that gold foil occupies such an important position in the operating room of the dentist, it is very necessary for him to be thoroughly acquainted with its properties, and well posted, at least theoretically, with the *modus operandi* of its manufacture. While many operators are well informed upon these matters, there can be no doubt that many entertain erroneous ideas.

There are two methods of refining gold.* One, which is usually called the *parting process*, is performed by adding to the gold at least three times its weight of silver and then digesting out the silver and alloy with nitric acid. This method of refining is used in the Mint of the United States; and, in fact, in nearly all gold refineries. Many makers of foil also use it. It matters not how carefully this process of refining is conducted, it is impossible with it to remove all the silver from the gold.

By the other process, the gold, which must be at least 18 karats fine, is dissolved in *aqua regia* and then thrown down in a metallic state by a precipitant, such as oxalic acid, proto-sulphate of iron, &c. It may be well here to remark that when oxalic acid is used the gold must be free from copper. This method is the only way to reduce gold to a state of absolute purity. To be successful with it, experience and great care are required. When all the various manipulations are properly conducted, this process of refining is the best, surest, least troublesome, and certainly the least wasteful.

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*No reference is made to the common process of refining, as practiced by jewelers and dentists, by using saltpetre, corrosive sublimate, nitrate of ammonia, antimony, &c.

After the gold is melted it is poured into an ingot, an open ingot mould is the kind used, and then forged. Before subjecting it to the rolls it is well annealed. It is now rolled into a ribbon about an inch wide. The length depends upon the amount of gold used. The thickness is influenced somewhat by the *number* of foil to be made. For No. 4 foil it may be thinner than for No. 6.

This ribbon is now cut into squares one to three grains heavier than the intended leaf of foil. This surplus weight is to allow for the gold that is beaten off in bringing the leaves up square, and also for that which is cut off in trimming. Some beaters use two tools for holding the gold when beating, one called a "cutch" and the other a "schoder;" while others, again, use only the latter.

These squares of gold are now alternately placed between the skins or papers of the cutch, and the whole enveloped by bands of parchment, and then beaten upon a firm marble block with a perfectly smooth face, with a hammer made expressly for the purpose, weighing from twelve to sixteen pounds. After the pieces of gold are beaten about two inches square, they are transferred to the schoder and then beaten to the required size. The skill of the gold beater depends more upon his knowledge of the nature of the skins he uses, how to keep them in working order, than upon the blows he makes.

Cutches were formerly made out of vellum, a peculiar sort of parchment, upon which books were written before the art of printing was known. But as vellum books and manuscripts have become rare and costly, a species of paper has been invented made out of vegetable matter combined with animal, which answers the purpose of the vellum, comes much cheaper, but is not so lasting. Schoders are sometimes made out of this same animalized paper. They are also made by "cutting down" an old worn-out "mould," a tool used in beating gilders' leaf, but which can no longer be used for this purpose. Several makers of foil in this country use, at great expense, vellum for both cutch and schoder.

It may not be amiss here to refer to gold beaters' skins, aside from cutch paper and vellum. All that are used in this country, and also in the greater part of Europe, are made by one firm in London. This establishment employs over three hundred hands, chiefly women and girls, in preparing these skins, which are made from a certain portion of the large intestine of the ox.

Having now given a brief but general outline of the process of making foil, I will consider the property of adhesiveness.

Pure gold is capable, after annealing, of being united or *welded* together at a low temperature. This property is termed adhesiveness. In the preparation of what is termed non-adhesive foil, manufacturers endeavor to get rid of it. The most of them do this by "doctoring" the gold with copper. As gold is such a *sensitive* metal, an "infinitesimal dose" is sufficient. One grain of pure copper will make at least 150 dwts. of pure gold non-adhesive. And however paradoxical it may seem, it is nevertheless a fact, that foil made from gold thus alloyed never becomes "hard"* after annealing, but "soft." This *softness* depends upon the destruction of the adhesive property by the alloy. In working such foil the different folds or layers do not weld together but simply slide over each other, which gives it a soft and yielding tendency. On the other hand, foil made from absolutely pure gold, when not rendered non-adhesive by some agent affecting the surface, becomes "hard" by its layers welding together, forming a solid mass.

The base metals, tin, lead, iron, &c., are, if I may so speak, deadly poisons to pure gold. A single grain of tin for instance will destroy the property of adhesiveness in at least 1,000 dwts. of gold. The presence of silver in foil will also impair the adhesiveness.

Pressing the leaves of adhesive foil between papers that have been fumigated with sulphur will also destroy the welding principle.

The following facts may be summed up in regard to foil:

1. The leaves of absolutely pure gold possess the property of being completely welded together by pressure, after a recent anneal, to a dull red. *The greatest degree* of adhesiveness is *immediately after* the anneal.
2. The property is gradually lost by exposure to the air, or to moisture, but reannealing will again restore it.
3. Just in proportion as pure gold foil is contaminated with copper, or with other metals, will its adhesiveness be impaired. Such foil, even if *slightly* adhesive immediately after the anneal, will *very rapidly* lose the property on exposure to the air.
4. The fumes of some of the metalloids, sulphur, for instance, will destroy the adhesiveness without affecting the purity of the metal. Annealing will restore it.
5. Adhesive foil, after it has lost the property of adhesiveness, if annealed slowly to 250° Fahr. on sheets of arnica, over a spirit lamp especially arranged for the purpose, becomes slightly adhesive without possessing the extremes of the property.

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*The terms "*hard*" and "*soft*" are here used in the sense in which dentists are accustomed to apply them to describe the *working quality* of foil.

Most of the instruments for sale in the shops, for working adhesive foil, have their points entirely too deeply serrated. Good foil does not require such points. They prevent thorough welding of the foil by the deep pits or holes which they make in it. A filling built up with such instruments must necessarily be more or less porous.

The writer believes that foil made from absolutely pure gold possesses all the properties and essentials, if rightly manipulated, to make a filling as perfect as it is possible to get it. In foil we have the *polarity* of the atoms of the metal normally arranged, which is not the case with the various preparations of sponge gold. The very fact, as the advocates of these preparations contend, that fillings made of them "can be inserted in two minutes;" dress up "*very easily* with the file;" "can be inserted *as well under water* as when kept dry;" is sufficient to make every dentist cautious of them who has an eye to the future *good of his patient*, as well as to the permanency of his own reputation and skill as an operator.

AUGUSTA, GA.

DENTAL EDUCATION.

BY DR. E. OLIN.

Our enumeration of the qualifications for the successful practice of dentistry, indicates the direction and scope of culture which a professional man should receive. The intellect must be well developed and disciplined, and the character built up strongly on a deep foundation of self-reliance and integrity. But a majority of our young men who enter the dental profession are not able to avail themselves of a college education. This fact is no excuse for a neglected, undisciplined mind. The common school gives the diligent student the foundation of a substantial education. When a youth has finished his course under the charge of an able instructor, he should go to college if he possibly can. It is there that he will learn order, method, obedience, and acquire knowledge of a business life. He will learn the value of time, and the value of money—two very important things to know. Whatever of conceit he may have brought from the village academy, or his private instructor, is soon rubbed out of him. He learns to obey, to submit, and to be patient, to endure reproof without anger, and to bear contradiction with good humor. Our young men are too much in haste to commence business on their own account. There is nothing gained in the end by this course; in fact, it is a most frequent cause of disappointment and failure.

Our earnest advice is to work on patiently and faithfully as students till they have mastered thoroughly all the details of their profession, established a character for knowledge, skill and integrity, and are prepared to take the helm of business into their own hands with a well-founded self-reliance, which will inspire confidence and command success.

SHERMAN, N. Y.

OXYCHLORIDE OF MAGNESIUM.

BY E. WILDMAN, M. D., D. D. S.

M. Sarel, in a communication to the French Academy of Sciences, laid before the body the discovery of a new plastic compound, or cement, composed of chloride of magnesium and magnesia, or oxide of magnesium, being a basic hydrated oxychloride of magnesium.

This compound is represented as being perfectly insoluble in water, and, like oxychloride of zinc, possessing in a greater degree than plaster of Paris, the property of not only being moulded in a variety of forms, but becoming much harder and taking a fine polish; to also possess a high degree of agglutinative property, so that solid masses may be made when in a mixture with fifteen or twenty parts of sand, limestone or other inert substance, to one of this compound. M. Dumas stated to the Academy that "experiments made two years ago leave no doubt of the good quality of stones prepared by this process, and the absolute resistance of objects so fabricated and molded to the deleterious action of water."

It is also asserted the denser the solution of chloride of magnesium is, the harder will be the compound when dry.

From the information derived from this meagre data, which is all that I have had access to, I have performed a few experiments with this substance, and offer the results to the public, trusting that others who have more time to devote to such subjects may by their labors produce with certainty a compound that will be valuable, if not to the profession, to the arts.

In my experiments to make the chloride of magnesium, I have saturated pure hydro-chloric acid with carbonate of magnesia, and then evaporated until it crystallized to ensure a neutral compound, after which it was dissolved in the smallest quantity of water that would make a clear solution, in order to have it concentrated and produce the best results.

This solution was incorporated with a sufficient quantity of calcined magnesia to make it, to use an indefinite expression, about the consistency of putty, and it requires much care to intimately incorporate them. The compound may then be readily moulded in any required shape, and when carefully compressed into a mould will take an impression of the utmost delicacy. This will require from four to six hours to harden sufficiently to remove from the mould with safety, and at the end of from twenty-four to forty-eight hours it will be found to be as hard as marble, translucent as fine alabaster, with a texture similar to purely magnesian stones. After a lapse of three months this beautiful translucency has disappeared and the specimens have assumed nearly a milk-white color; some specimens are badly checked or cracked, while others maintain their integrity unblemished. This convinces me that, with the proper knowledge of working this material, a compound of great beauty, if not utility, could be obtained. It contracts in setting; it may be readily colored, as I have found it will receive vermillion, chrome green, Prussian blue, zinc white, ivory black, chrome yellows, and their combinations without decomposition. The base being translucent, it will receive a flesh-color almost equal to wax.

ON THE EXTRACTION OF TEETH AS THEY PERTAIN TO IRREGULARITIES.

BY JAMES LEWIS, D. D. S.

I propose to offer a few hints on the teeth, as they are presented to the dental practitioner. My limited time and space will not permit me to enter into anything like a detailed description of irregularities, or the mode of treating them. Therefore, I will confine myself more particularly to a description of such teeth as should be extracted, and those which should not be removed from the dental arch.

To the inexperienced practitioner, the mouth and teeth seem to present but a limited field to require our undivided attention, but to the dentist of education and long experience, he finds it the most difficult matter to properly diagnose each case, and determine what course to pursue for his patient's future welfare.

The dentist who can extract a tooth, or fill a cavity well, or insert an artificial denture, has learned but a tithe of what should be required of a dentist.

A mistake in extracting a wrong tooth, or removing a tooth too soon, or in leaving one too long, is almost irreparable.

The treatment of children's teeth is quite difficult, and, at times, very annoying to the operator, as we have the fears of the child, and, at times, the whims of the parent or nurse to contend with.

The dentist should always endeavor to gain the confidence of the child before commencing to operate; and, if it is possible, never do anything to give pain to your little patient on the first visit, but examine the case carefully, and possibly within a few hours, or during the next call, the child will submit to any operation necessary.

The too early extraction of children's teeth cannot be too severely condemned; nature usually does her work better than all the efforts of man; but, in a few instances, the skill of the dentist is required to remove the deciduous teeth, when absorption does not take place sufficiently early to loosen the temporary tooth, and make room for the approaching permanent one.

Tomes says, "it is extremely difficult to conceive how the removal of the temporary teeth can induce the jaw to contract upon the crowns and growing permanent teeth. Organs in an active state of development induce the expansion of parts about them, and there is no good reason for supposing that the jaw forms an exception to this rule."

Young practitioners, acting on the above opinion, from such high authority as Tomes, would be led to commit a great many errors which watchful and careful experience would cause them to regret in after years.

Now, as the eruption of the central incisors occurs about the seventh year, and the canines about the eleventh or twelfth, my opinion is, that we should *not* remove the temporary teeth until the permanent ones are making their appearance, which the experienced dentist will easily detect.

The crowns of the permanent incisors, being much wider than the temporary ones, the lateral incisors should not be removed to give room for the centrals, nor the canine teeth removed to make room for the laterals, for the growth and expansion of the jaw will soon make space sufficient.

Several cases have come under my observation where the six temporary front teeth were extracted at one sitting for children of seven years of age. The four permanent incisors appeared with the usual regularity, and about the ninth year the first bicuspids erupted in contact with the incisors. About the twelfth year one of the canines made its appearance; it seemed to press its way through between the other teeth, and assumed its place in the dental arch; but the incisors were all moved to one side, which gave a very unsightly appearance, and left no room for the other canine, which came through on the external side of the other teeth.

If the temporary teeth had been left until the time for each permanent tooth to make its appearance, there is no doubt these persons would have had a perfect and regular set of teeth; for it is a well-established fact that the bicuspids will press forward where there is nothing to oppose, when, if the temporary canines had been left, it would have probably saved all future trouble.

The temporary molars should not be extracted until the bicuspids make their appearance, for the same reason as stated above, that the first permanent molars will press forward into the unoccupied space, which causes a more fixed position in the whole posterior structure, which is very difficult to overcome without extracting some valuable teeth: where, if proper care had been observed from the beginning, the arch would have been preserved, and the patient saved a great deal of expense and trouble in after years.

The preservation of all the teeth in the dental arch is desirable, if it can be done successfully, to middle age at least. But, unfortunately, the dentist is consulted quite too late, in most instances, to do what would be practicable if he could have seen the patient in early childhood. But as the dentist has to do as his patients present themselves, we have no alternative but to treat each case according to existing circumstances.

The first permanent molars are the most liable to decay, and often, at an early age, the child will present with an exposed pulp in one or more of these teeth. Now, the first question arises, is it best to treat such teeth and fill them, or extract them immediately? Before proceeding to treat such cases, we should take into consideration the age of the patient, next the general contour of the face, and especially see one or both the parents, if possible; examine whether there is a tendency in the teeth to spread apart into a fan-shape, or to be crowded and over-lapping where there is not room. For the teeth and general shape of the jaw is hereditary to a great extent; and, where the jaw is rather small, and the teeth large, with quite a fullness in the lips, we should merely treat them temporarily, as the first permanent molars should never be removed from the jaw until all the anterior teeth have taken their places in the dental arch. Therefore, we should always endeavor to preserve them until the patient is twelve or thirteen years of age.

If the canines and incisor teeth are crowded and irregular, and the molars present an unfavorable aspect, being decayed on both approximal surfaces, also on the masticating surface, we should fill them temporarily, so as to last until the age stated above.

When the dental pulp is exposed, and it becomes necessary to destroy and remove it from the tooth, while the dental tissue is not fully calcified, and before the tooth becomes perfectly organized, or before the structure assumes that density which takes place in the adult, such teeth are quite sure to fail at an early age.

By destroying the nerve-pulp, while the tubuli are large, and before the intertubular spaces are filled with ossific matter, they become engorged with a greater amount of broken down blood corpuscles, which must cause the tooth to disintegrate, and the whole tissue to give way very soon.

Therefore, I consider the retention of such teeth in the jaw, to a later age than thirteen, quite objectionable; for, by removing them from the jaw at this age, the front teeth settle back and assume a more regular aspect, and the second molars will take the place of the first, without pressing upon the anterior teeth, thereby making room for the dens sapientia, which will make their appearance at a much earlier age than they would have done if all the molars had been kept in the jaw. We find that the third molars are much sounder and healthier where they have room to erupt at an early age than where they have been prevented from making their appearance until a late period of life, for want of room or other causes, they are quite sure to be decayed when they first appear through the gum.

I would never advise the extraction of the first bicuspid on one side, if it is possible to preserve it, especially in young persons, as all the anterior teeth will move toward that side, or they will recede, so as to present a sunken appearance of the face. But the second bicuspid, in a young person, where the nerve is exposed, and the tooth badly decayed, and the first molar is sound, I would remove as soon as possible, for such teeth are quite sure to break away in a short time at best.

VERMONT.

ON FRACTURE OF THE INFERIOR MAXILLARY.

BY D. R. GREENLEE, D. D. S.

This bone is liable to be fractured at almost any point, but in young subjects more frequently at the symphysis, as this is the weakest point during early life. This, however, depends much upon the direction of the force and the point where it is applied.

Prof. Hamilton mentions four out of twenty-nine cases, which were fractured through the symphysis, two of which were fractured through the shaft at the same time. Another very frequent point of fracture is at or near the mental foramen. Dr. Erickson thinks he has seen it most frequently broken near the symphysis, between the lateral incisors or between these teeth and the cuspid.

The condyles are sometimes broken, generally at the neck below the insertion of the external pterygoid muscle, which fracture is produced by blows or falls from two different directions. One from the chin and the other from direct force upon the side of the face.

The coronoid process is rarely fractured, and cannot be fractured except by a direct blow. It is very much protected by the bed of muscles in which it lies, and the zygomatic process of the temporal bone which arches over it. This process, when fractured, rarely ever unites. Dr. Sanson asserts that it never unites, but that mastication is performed very well. The masseter and pterygoid muscles then fulfill the office of the temporal.

Longitudinal fracture of this bone has been produced by a ball club striking the alveolar process at its base, forcing in the dental arcade with all the incisor teeth, some of which were thrown out of their sockets, which were successfully replaced and held in position by a gutta-percha cap placed upon the crowns of all the lower teeth; a perfect union of the bone took place, with the teeth firmly fixed in their sockets. Fracture of the inferior maxillary has been looked upon as a difficult one to treat, on account of the difficulty of overcoming the action of the many muscles which are attached to it. *First.* We have the masseter, temporal and the internal pterygoid drawing the bone upward. *Secondly.* The external pterygoid drawing the bone directly forward, so as to make the lower teeth project beyond the upper, which are drawn back again by the deep fibres of the masseter and the posterior fibres of the temporal. If the external pterygoid of one side acts, the corresponding side of the jaw is drawn forward, and the other condyle remaining fixed, the symphysis deviates to the opposite side. The alternation of these movements on the two sides produces trituration. *Thirdly.* We have the digastric, genio-hyoid and mylo-hyoid to depress the jaw.

The external pterygoid and the depressor muscles are the principal ones engaged in doing mischief to a fracture of this bone. A number of modes of treatment have been adopted by different surgeons of high standing, but none them have been without their failures, principally for the want of a perfect interdental splint to hold the parts in perfect rest, which is very important in the treatment of any fracture.

Nature does not do her work in a hurry, nor does she undertake the reparative process of a fractured bone upon the run, but by a slow and beautiful process. There is a great diversity of opinion as to how this process takes place. Dupuytren and others think that there is a provisional or temporary callus, by which the fragments are supported and maintained in contact, until the permanent callus is formed. It is also maintained by some pathologists that this ensheathing callus, or resemblance of spongy bone, is not completed until about forty days, but sometimes vary from twenty to sixty days, but does not assume the character of compact bone until a period varying from fifty days to six months, after which it is gradually removed by absorption.

The second process, by which the ends of the bone are definitely or permanently united, commences when the provisional callus has arrived at the stage of spongy bone, and is not completed usually within less than eight, ten or twelve months, at which time Dupuytren asserts that it acquires a solidity greater than the original bone. Stanley was one of the first to question the doctrines of Dupuytren. But it remained for Paget to revolutionize the theories adopted by this learned pathologist. He thinks the bones unite in the same manner as the soft parts, by direct union of the broken surfaces, and without the interposition of any reparative material. We are inclined to adopt the latter theory under certain circumstances, particularly where the bones are kept in perfect rest and perfect apposition is obtained.

But where these conditions are not present, we are likely to have no such union. No doubt the different circumstances under which fractures have united, has led to the diversity of opinion in regard to the manner in which union takes place. We could not expect direct union to take place in fracture of the ribs, on account of the unavoidable movement of these bones in the act of respiration. In fracture of the patella, olecranon process of ulna, or coronoid process of inferior maxillary, we have no osseous union, but fibro-ligamentous adhesions.

Some authors think there would be osseous union if the muscular action could be overcome so as to keep the parts in apposition; others say it would not unite by bony matter for the want of nutrition, which is feeble at one end. This may be the rule, yet there are rare cases of osseous union under favorable circumstances.

There is another class of bones analogous to those just mentioned in this respect, and that is those which are invested by synovial membranes, as the head of the femur, which rarely unites at all. Therefore, we have, in certain conditions, non-union, and in others fibro-ligamentous; and under more favorable circumstances, the provisional callus with its reparative material interposed, all of which is the unavoidable result of certain abnormal conditions, which Providence, in his infinite wisdom, has made wise provision for.

We will venture to say that direct union takes place in normal conditions, and that the various other modes of union are the result of unfavorable circumstances. To define more fully the normal conditions, we would say, that they are not entirely confined to a perfect coaptation of the parts, and perfect rest, but that the patient should not be of a strumous diathesis, or possess a bad quality of blood, decayed teeth or ulcerating fangs in the region of fracture, or anæmic condition of the system, all of which tend to an imperfect result, and could not be considered as normal conditions.

Fracture of the body of the inferior maxillary is characterized by the usual signs, fracture of elsewhere; namely, displacement, mobility, crepitus and pain. The displacement is generally present, but its direction and amount vary according to situation and course of fracture, and also according to the violence and direction of the force producing the fracture. Mobility is not so observable in this bone as in the long bones, yet is sufficiently marked, especially where the bone is broken on both sides at the same time.

Sometimes a slight swelling or tenderness at some point of the dental arcade, or the loosening or complete dislodgement of a tooth, will indicate the point of fracture. Pain, especially on movement of the fragment, is greater than any other fracture, partly on account of the superficial position of the bone, which renders the soft parts lying over it more liable to injury from the causes of the fracture; also, in part, to the lesions of the inferior dental nerve, which, in two or three cases on record, resulted in convulsions.

A fracture through the neck of the condyles is characterized by pain at the seat of fracture, especially recognized when an attempt is made to open and shut the mouth by inability to move the jaw, and by crepitus, (which may be felt by the patient himself, or even heard,) and by mobility and displacement.

The upper fragment, if disengaged from the lower, is drawn forward, upward and inward, by the action of the pterygoideus externus, and is not felt to accompany the movements of the lower fragment The prognosis of a fracture of the lower jaw is favorable under favorable circumstances. There are a number of cases on record of delayed union, also of non-union, which, no doubt, is owing to some one or all of the abnormal conditions, as before stated.

Fracture of the inferior maxillary is very frequently compound in character, and may be made by dislodging a tooth, or by a sharp fragment puncturing the mucous membrane, which may be one of the causes of delayed or non-union, by the washing away of the lymph by the saliva. Some authors tell us that it is better not to replace the teeth if entirely loosened, as it is apt to necessitate the removal of them at some later day, especially the molars.

It is true, that the main life of the tooth is cut off by the severing of the nerve and blood-vessels, yet we know that teeth have remained for years in comparatively a healthy condition, dependent entirely for support upon the periosteum. However, if the patient had decayed teeth in the region of the fracture, we would remove them; also, sound teeth, if loosened, if the patient be of a strumous diathesis, as teeth in such subjects are quite prone to become diseased. But, if the patient is in good health, it would be well to adjust them and give them a trial.

Successful treatment of fracture of the lower jaw requires more skill and ingenuity, perhaps, than any other fracture, especially if compound or comminuted. The chief difficulty is in restoring the jaw to its relative position with the upper, which, in many cases of compound and comminuted fracture, it would be almost impossible to do, yet, if the fragments are held, as near as possible, in situ, by an assistant, an impression can be taken with wax or plaster of Paris, from which is obtained a cast of the jaw, also obtain a cast of the upper, and bring the teeth of the casts together, and if the articulation is not perfect, the lower cast may be broken at the same point as the fracture of the jaw; then the displacement can be corrected by arranging the teeth of the lower to the upper jaw, after which the fractured cast may be repaired by cementing it with a batter of plaster of Paris. This gives us a model of the mouth, from which a gutta percha or vulcanite splint can be formed to suit the case. Should the patient have no teeth, the same process may be carried out, which would be indispensable to union of the parts.

There are two good reasons in favor of the interdental splint. *First.* The fragments are held in their proper position, and perfect rest is secured thereby. *Second.* It affords an opportunity for making an opening for the passage of food, which, of course, must be in fluid form. It also avoids the necessity of extracting a tooth for this purpose, as was suggested by old writers on this subject. To make this operation complete, an external splint must be made by cutting a sheet of gutta-percha, or pasteboard, in an oval form, of sufficient length to cover the chin and body of the bone, then cut a longitudinal slit at each end, so as to form a kind of a four-tailed splint; soften this in warm water, and place it upon the chin, with the tail pointing backwards; now turn the lower tail upwards across the upper. This can now be moulded to fit the jaw accurately, after which apply Barton's bandage, and we have it permanently fixed.

CRAWFORD. CO., PENNA.

THE PROMOTION OF THE GROWTH OF THE ALVEOLI IN REGULATING TEETH.

BY H. MEREDITH WHITE, M. D., D. D. S.

During the treatment of many cases of irregularity of the teeth, extending over a period of several years, I have observed that the number of teeth that were out of position, and were finally moved into their proper places, seemed to be greater than could be accommodated in the maxillaries.

The difference of size of the jaws, after the completion of the operation, and that of the cases before treatment, gave rise to the thought of making this subject an essay of short length, for the purpose of attempting to arrive at some definite conclusion, whether, in reality, there is an increase of bone structure, or whether the increase is an apparent increase of substance, resulting from the unfolding of duplicated periosteum, or bending of the thin folds of the alveoli, giving sufficient room for the teeth.

Is there a probability of increase of bone in the alveoli and base of the jaw in the adult? And is there a probability, by stimulation, direct to the part, of a development beyond that which would occur if nature had not been assisted? It is well known by all that animals, including man, are more highly developed, both in size and force, and compactibility of muscle and bone, by nutritious food, and that a diet, diminished in quantity or nutritive powers, tends to small size and want of power, and looseness of texture of both the soft and hard tissues. In the lower animals this is more observed than in the animals of a higher order. I am now referring to the whole organism of individuals of the different species. The increase of particular parts is what this paper considers, viz: that of causing an increased growth of the upper or lower maxilla, if desirable.

A case in point: an adult patient, the superior maxilla complete, and the teeth regular, with the exception of the left superior cuspidatus, which was situated in the roof the mouth, the first bicuspid and lateral incisor of the same side approaching so as to leave but one-third of the space destined to be occupied by the canine tooth.

Now, whether in pushing the irregular tooth to its proper position, by wedging apart the encroaching teeth, and occupying the space made by the separation, there is increase of substance in the bone of the alveolus?

It will be found, by measuring the segment of the circle extending from the first molar of one side to the first molar of the other, before the regulation, and by measuring the same segment after the completion of the operation, that there is a great lengthening of the segment, while the protuberance in the roof of the mouth, caused by the presence of the irregular tooth, still remains: ultimately this is absorbed, and the roof of the mouth becomes regular. It would seem that if the segment was increased in length, there must have been a disposition of cartilaginous substance and lengthening of the periosteum, and of ultimate conversion into bone, and the space from whence the inclined root was removed filled up with ossific matter.

If a tooth is extracted, the cavity left in the alveolus is filled up with bone, as well as part of the thin walls absorbed. I have seen several beautiful specimens demonstrating this. We know that bone can be removed by pressure or other stimulus to the absorbents, and cannot bone of the alveolus be encouraged in growth by properly directed stimulus to the nutritive vessels? Cannot nutritive action, or a deposition of matter be caused at certain parts? Some anatomists teach us that depressions, or fossæ of bones which accommodate the bellies of muscles, are caused by the pressure of those muscles, and thus the shape of long bones particularly are determined by the muscles surrounding them. Others deny this, because paralytic persons from birth have the same depressions and ridges, but it is to be doubted if they are so well marked.

People of inactive habits, by want of exercise of the muscles, caused by sickness or idleness, have more rounded and smoother shaped bones than those whose muscles are strong and active. This, then, would prove that the shape of bones is to some degree determined by direct action, pressure, or presence of surrounding parts. This would lead us to suppose that the contrary was true, that the absence of, or lessening of, pressure of surrounding parts would give more opportunity for the enlargement or growth of bone in those parts.

All this would seem to prove that the shape, or even size of bones, could be controlled by pressure, or the absence of it. We know that the arch of the superior maxilla can be enlarged or widened by wearing a plate, with a hinge opposite the median line of union between the two halves of the maxilla, and having a strong spiral spring attached to the plate opposite the molars or bicuspids of each side, and bending forward and laying close to the plate, making a continual pressure outward.

This would be simply a process of bending. We also know that the arch can be diminished in width by the use of an apparatus having a pressure inward. We know that the segment of the arch can be lessened by extracting a bicuspid or other tooth on one or both sides, and drawing the front teeth backward, so as to make a regular arch after the loss of the teeth, and that space can be obtained by wedging apart teeth on one or both sides, sufficient for the accommodation of at least one tooth, or one on both sides.

In lessening the arch there is loss of substance, first, by compression, which finally is in reality established by absorption of structure, then if space is gained it would seem to be caused, first, by extension, and finally by actual deposition and increase of bone structure. Thus it would seem that, if I may use the term, a certain amount of *hypertrophy* could be induced without producing actual disease, as well as a certain amount of *atrophy*. Hence, the thought of promoting an increased growth of bone in the maxilla by direct mechanical contrivances, which produce a *super-nutritive* action of the vessels supplying the parts, that were, as yet, but partially developed, the vessels have now an opportunity of carrying on their functions of nutrition, being prevented before by want of space, and also of lessening the size of them by accelerating the action of the absorbents.

The development of bone it is unnecessary to mention, as it can be found in the text books. There have occurred in my practice cases where the inferior maxilla was much greater than the superior maxilla, the number of teeth being the same in each jaw, the superior maxillæ of the cases were widened by means of the hinge plate, and the use of inclined planes, rising from plates fitted to the lower jaw, for the upper front teeth to slide on over the lower ones, and the molars and bicuspids pressed outward, so as to articulate properly with the teeth below. In all these cases the segment of the arches were much increased; in some of them the upper teeth were partially separated, and in others, apparently, no separation occurred, but in all an apparent, if not an actual increase in size, was evident. If the teeth were not moved into position, the blood-vessels destined to supply nutrition to form bone for the accommodation of the teeth, had they been in their proper places, remain idle, although they are present, and when the teeth are moved forward to the arch, furnish nourishment to produce the necessary bone.

PHILADELPHIA, PA.

Editorial.

HISTORY OF THE ANATOMY ACT OF PENNSYLVANIA.

At a stated meeting of the College of Physicians, held February 6th, 1867, Doctor W. S. Forbes offered the following resolution:

"*Resolved*, That a committee of three be appointed to present the views of this College to the Legislature of the State, urging the passage of a law sanctioning the dissecting of dead human bodies."

He said: "In presenting this resolution, and asking its adoption by the College, it may be proper to state how legislative enactment, authorizing and regulating dissecting, will enhance the cultivation of the study of anatomy.

"Two considerations present themselves at the very threshold of the matter. One is general in its nature, representing the broad catholic principle of being right in itself, and embraces the very root of everything that is accurate, and useful, and learned in medicine. The other is entirely local in its character, and interesting to us as physicians of a great medical metropolis. Both of them gravely appeal to this body for sanction in its highest corporate capacity, and both of them impel us to ask for legislative action.

"In regard to the first consideration, that of its being right in itself, I am free to confess, in this learned body, it would be out of place to do more than announce so manifest a statement.

"I shall, therefore, address myself at once to the examination of the remaining consideration, namely, that of its being interesting to us as physicians of Philadelphia. And I trust it may not be thought impertinent in me to state, by way of preface, that, after having been a teacher of anatomy and operative surgery in this city for ten years, to classes numbering in the aggregate near a thousand students, some of them now within the sound of my voice, I may be supposed to know something of the difficulties in the way of obtaining sufficient *material* for purposes of practically teaching so large a number of young gentlemen.

"In view of the fact that our city contains now three-quarters of a million of inhabitants, I think it is idle to suppose there is not an ample number of *unclaimed dead bodies* to satisfy the demands of all who may come for the purpose of cultivating a knowledge of anatomy, both healthy and morbid. In what, then, is the difficulty?

"I believe it consists entirely in the fact that there is no law of the Commonwealth by which our physicians can claim these dead bodies, to be used for medical investigation; the authorities in whose hands they are lodged do not feel themselves at liberty to give them up for any purpose, however laudable.

"They are, therefore, buried, and afterwards obtained surreptitiously by a third party, the so-called 'resurrectionists,' who engage in a degrading traffic, and sell them to the highest bidder; and, as it is well known that the anatomists of medical schools in distant States send here every winter to supply their dissecting-rooms, the debasing trade is stimulated, and the practical teachers here and elsewhere find themselves in unworthy competition with each other. Consequently, the price demanded, and often obtained, is such as to tempt the resurrectionist to enter private cemeteries and graves, and even to commit murder, as was the case in Edinburgh, in 1829; all tending to bring obloquy on anatomical teaching, to deter the student from pursuing his studies with that degree of diligence which is requisite for his future usefulness, and to the injury of our city as a seat of medical learning.

"During the rebellion, when a Surgeon of volunteers, and particularly as Medical Director of the Thirteenth Army Corps, U. S. Volunteers, before and during the siege of Vicksburg, in 1863, I had ample opportunities of being a painful witness in observing the want of a practical knowledge of anatomy on the part of many surgeons; and I can attribute this ignorance only to the obstacles in the way of having freely and systematically dissected the dead body during their novitiate and afterwards.

"Believing this to be the case, and with the view of removing one very great difficulty, I drew up the following 'Act,' and submitted it last winter to the Legislature of the State:

"'AN ACT *for the Promotion of Medical Science, and to Prevent the Traffic in Human Bodies.*

"'SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same, That the Inspectors and Superintendent of any County Prison, the Board of Guardians of any City or County Almshouse, the Coroner of any County, or any other public officer having charge thereof or control over the same, shall give permission to any physician or surgeon of the same county, upon his request being made therefor, to take the bodies of such persons dying in such prison, almshouse, or county, as are required to be buried at the public expense, to be by him used within the State for the advancement of medical science, preference being given to medical schools, public and private; and said bodies to be distributed to and among the same, equitably, the number assigned to each being proportioned to that of the students: provided, however, that if the deceased person, during his or her last sickness, of his or her own accord, shall request to be buried; or, if any person, claiming to be, and satisfying the proper authorities that he is of kindred to the deceased, shall ask to have the body for burial, it shall be surrendered for interment: or, if such deceased person was a stranger or traveler, who died suddenly, the body shall be buried, and shall not be handed over as aforesaid.

"'SECTION 2. Every physician or surgeon, before receiving any such dead body, shall give to the proper authorities surrendering the same to him a sufficient bond that each body shall be used only for the promotion of medical science within this State; and whosoever shall use such body or bodies for any other purpose, or shall remove the same beyond the limits of this State; and whosoever shall sell or buy such body or bodies, or in any way traffic in the same, shall be deemed guilty of a misdemeanor, and shall, on conviction, be imprisoned for a term not exceeding five years, at hard labor in the county jail.'

"This Act passed the House of Representatives, but in the Senate *a member* objected to it, as being unworthy the age in which we live, and, as his influence was of weight in that assembly, it was thought proper to withdraw the 'Act,' until a more propitious time.

"In view of which, I now desire to have the sanction of this body, believing that, coming from such high authority, and exerted in so just a cause, there can be but one issue to the event."

The resolution was duly submitted, and the College unanimously passed it.

The committee appointed were, DR. W. S. FORBES, DR. S. D. GROSS, DR. D. HAYES AGNEW.

At a stated meeting of the College of Physicians, held April 3d, 1867, Dr. Forbes, chairman of the committee appointed to present the views of the College to the Legislature of the State, urging the passage of a law sanctioning the dissecting of dead human bodies, read the following report:

"MR. PRESIDENT:—The committee appointed to present the views of this College to the Legislature of the State, urging the passage of a law sanctioning the dissecting of dead human bodies, respectfully report, that they convened, and concluded to express the views of the College in the form of a statutory act, and ask that it be made a law. Accordingly, the paper drawn up, and read, and shown to the College by the mover of the resolution, appointing this committee on the 6th of February, entitled 'An Act for the promotion of Medical Science, and to prevent the traffic in human bodies,' was approved, and placed in the hands of Senator Wilmer Worthington, of Chester, a doctor of medicine, and a gentlemen whose high character and influence materially advanced our cause, with the request that he would read it in place, and ask its passage by the Senate. This Act provides that the bodies of all persons to be buried at the public expense shall be given to any physician or surgeon of the same city or county claiming them for the promotion of medical science; and that an equitable distribution of these bodies shall be made, preference being given to medical schools, public and private; and that they shall, in no case, be taken out of the State, and that no traffic in them whatsoever shall exist. The Senate referred the Act to a committee, which adopted a negative report, and presented it the following day. Senator Worthington then asked the Senate to recommit the Act, and that permission be granted the College committee to appear and explain their views.

"Your committee determined to proceed to Harrisburg for this purpose, and, as one of their number, Dr. Gross, was unable, from professional and other engagements, to accompany them, Dr. Henry Hartshorne was invited to unite with and assist them in their endeavors. Dr. Hartshorne consented, and your committee would acknowledge his services.

"Your committee found the legislative mind opposed to the passage of our Act, and it became necessary to explain its virtues with becoming care, for it was called a 'Ghastly Act,' with more temper than wisdom, by leading Representatives.

"It was submitted, that the Legislature had granted charters to a number of medical institutions, which based their instruction on a knowledge of anatomy, and yet there was no law permitting the examination of the human body. That in the courts of the Commonwealth the physician was liable to be arraigned for mal-practice, in cases of accidents requiring surgical treatment, and yet he was debarred from obtaining the very knowledge he was required to display under heavy penalties.

"That, owing to the absence of such a law as was now presented for their sanction, giving all *unclaimed dead bodies* to the medical institutions, the price demanded and obtained by the degraded and debased creatures who engage in the traffic, known as the resurrectionists, became a temptation to commit murder, as in the case of Burke, who, at Edinburgh, in 1829, slew fifteen innocent human beings, for the purpose, as he confessed at his trial, of obtaining four guineas from the medical schools.

"That it was only when the cause of this dreadful crime became known, the British Parliament, in view of the necessity of anatomical investigation, passed the so-called Warburton Act, which was found, in a measure, to subserve the purposes for which it was intended.*

"That graves and private cemeteries were entered, and the dead bodies brought to the dissecting-table here, and frequently sent to distant cities for purposes of anatomical instruction, were often sought after by sorrowing friends, much to the chagrin of the anatomist, and maledictions applied to his pursuit.

"These, with other arguments, were advanced, and, finally, it was gravely observed that, as it was impossible, in the nature of things, to prevent the examination of the dead body of man, and as there was no law of the Commonwealth regulating the matter, it was manifest the bodies of distinguished legislators themselves, after a life full of good works, were no longer safe in their graves, but were liable to be rudely disturbed.

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*See Lancet, vol ii., 1831-32. Curious enough, the Warburton Act, while legalizing dissecting, does not prevent the traffic in dead bodies.

"After this interview, the Senate committee presented an affirmative report.

"When called up, on its final passage, some days after, in the Senate, it was objected that, unless the provisions of this Act were restricted to Philadelphia, it ought not to pass, on the ground that the views of the constituents of the rural Representatives were not known on the subject.

"The chairman of the College committee being present on the occasion, was asked if it would suit the views of the College to restrict the provisions of the Act to Philadelphia, with the remark that, if it did not, the Act probably could not pass. The chairman, being alone at the Capitol at this time, assumed the responsibility of saying that he believed the College of Physicians had the catholic desire of having the benefit of the Act extended to every part of the State, but, certainly, if it could not be obtained for their neighbors, they would receive it themselves. At the same time, he observed, it would be well to reflect that, from the very title of the Act, 'to prevent the traffic in dead bodies,' if the restriction spoken of was made, while the traffic could not exist in Philadelphia, the converse would be the case in the country, and it would be legal. Yet such was the prejudice against the Act, the restriction was made, and when the vote was being taken, a Senator from Allegheny asked to have his district included with Philadelphia, which was done, and the Act passed the Senate.

"It became necessary, on a subsequent visit, to address the same arguments to the members of the House of Representatives, and they approved the action of the Senate.

"The Governor of the State was seen, and made the occasion of a third visit to the Capitol; and your committee rejoice to announce our Act became a law on the 18th of March, 1867.

'It reads as follows:

"'AN ACT *for the Promotion of Medical Science, and to Prevent the Traffic in Human Bodies in the City of Philadelphia and County of Allegheny.**

"'SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same, That any public officer in the City of Philadelphia or County of Allegheny, having charge thereof or control over the same, shall give permission to any physician or surgeon of the same city or county, upon his request made therefor, to take the bodies of deceased persons required to be buried at the public expense, to be by him used within the State for the advancement of medical science, preference being given to medical schools, public and private; and said bodies to be distributed to and among the same, equitably, the numbers assigned to each being proportioned to that of its students; provided, however, that if the deceased person, during his or her last sickness, of his or her own accord, shall request to be buried: or if any person, claiming to be, and satisfying the proper authorities that he or she is of kindred of the deceased, shall ask to have the body for burial, it shall be surrendered for interment; or, if such deceased person was a stranger or traveler, who died suddenly, the body shall be buried, and shall not be handed over as aforesaid.

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*The States of New York and Massachusetts have passed laws on this subject somewhat similar to this one. See Revised Statutes of New York, 5th edition, vol. ii., page 67; General Statutes of Massachusetts, 1860. page 195.

"'SECTION 2. Every physician or surgeon, before receiving any such dead body, shall give to the proper authorities surrendering the same to him, a sufficient bond that each body shall be used only for the promotion of medical science within this State, and whosoever shall use such body or bodies for any other purpose, shall remove the same beyond the limits of this State, and whosoever shall sell or buy such body or bodies, or in any way traffic in the same, shall be deemed guilty of a misdemeanor, and shall, on conviction, be imprisoned for a term not exceeding five years, at hard labor, in the county jail.

(Signed,) "'L. H. HALL, *Speaker of the Senate.*
"'JOHN P. GLASS, *Speaker of House of Rep.*

"'Approved March 18th, 1867.
"'JOHN W. GEARY, *Governor.*'

"Such is the law obtained from our Legislature through the action of this College in its corporate capacity.

"A law, the humane provisions of which were first partially established in Edinburgh* in 1505, and yet more extended in France after the revolution of 1798, and under the first empire; and the wisdom of which was observed by the British Parliament in a statute only of late, when a frightful crime revealed its necessity.

"All of which is respectfully submitted.

"Signed by the committee.

WM. S. FORBES, M. D., *Chairman.*"

HALL OF THE COLLEGE OF PHYSICIANS,
Thirteenth and Locust streets, April, 1867.

On motion of Dr. Rodman, the College of Physicians unanimously passed a vote of thanks for "the able and successful exertions" made to obtain this law. W. S. F.

WE are now using a valved inhaler for nitrous oxide, the invention of Dr. S. W. Sine, of Easton, Pa. It surpasses in efficiency any that we have seen or used heretofore. G. T. B.

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*See Edinburgh Medical Journal, Oct., 1866. "Historical sketch of the Edinburgh Anatomical School, by John Struthers, M. D., F. R. C. S., Edinburgh, Professor of Anatomy in the University of Aberdeen.

THE DENTAL VULCANITE CO. vs. THE DENTAL PROFESSION.

The action of the Dental Vulcanite Co., in times past, has developed a system of shrewd management which has by no means commended the justice of their claims to the dental profession; but the following correspondence, which we extract from January number of *Dental Cosmos*, Vol. X, No. 1, develops, if the conclusions arrived at by the author are correct, a deep laid scheme, whereby information may be obtained as to the persons making use of rubber in the preparation of artificial substitutes.

THE RUBBER QUESTION.

To the Editor of the Dental Cosmos:

Thinking that in these times of excitement in reference to the rubber question, any facts which will throw light on the *modus operandi* of the Boston Dental Vulcanite Company will be interesting to the profession, we submit the following:

About a year ago, being in Boston, and feeling a natural curiosity in reference to all matters relative to dentistry, we called at the works of the Boston Belting Company, by whom the star gum is manufactured.

In talking with the superintendent, he incidentally informed us that the Boston Belting Company and the Boston Dental Vulcanite Company were *the same*, or that they were interested in common to get all they could from the dentists. This did not seem of much importance at the time, except that it was the height of folly to buy gum of the *same* company which was prosecuting the profession, because it was putting money into the hands of the company with which to continue the suits.

Now, however, this information does become important, when the Boston Belting Company offer to sell their gum to the dentists at $2 per pound, and request the dentists to send directly to them for it.

The design is obvious—namely, to get the names of the dentists, and then to get orders directly from them. This is done under the cover of a reduction in price.

After the company has received an order from a dentist for even a single pound of gum, it is strong presumptive evidence, to say the least, that he is vulcanizing rubber, and some fine morning the company's agent will call at his office with all necessary information and ask for a settlement.

The profession ought to understand that they are dealing with shrewd men, and that it is better to pass by this tempting bait of a reduction in price, even at some temporary sacrifice, than to give information which will *certainly* be used against them. "A word to the wise is sufficient."

R. S. W.

We have received, too late for review, from the publisher, S. S. White, a copy of the Register Papers, A Collection of Chemical Essays in reference to Dental Surgery, by Geo. Watt, M. D., D. D. S., Professor of Pathology and Therapeutics in the Ohio College of Dental Surgery, &c., &c. The paper and typography are unexceptionable. The work is neatly bound, and will be found to contain much valuable and important material. In our next number we shall review the volume at length. From a hasty glance at its contents we bespeak for it a cordial reception by the profession. G. T. B.

PATENT NOTICE.

The Buffalo Dental Manufacturing Co.

Having purchased from E. A. L. Roberts, his entire interest in all of his patents for

DENTAL VULCANIZING APPARATUS,

And the patent issued to S. W. Warren, which, in connection with the patents previously held by them, cover every form of the Single Chamber Vulcanizers now in use, together with all desirable features in regard to

Thermometers, Heating Apparatus, Modes of Fastening, &c., &c.

NOW, THEREFORE, the object of this is to notify Dentists, Dealers and Manufacturers; that legal rights will hereafter be strictly enforced.

The litigations thus far carried on have developed features which rendered this the only course for us to pursue.

Parties wishing to manufacture, use, or sell, must procure the proper license, and pay a reasonable share of the very great expense we have been compelled to incur.

Buffalo, October 19, 1867.

JOHN KLEIN,

MANUFACTURER OF TEETH,

REMOVED TO

No. 621 SOUTH TENTH ST.,

Where he has for sale a large assortment of the LATEST IMPROVED TEETH for all kinds of Rubber and Plate Work, with Double-Headed Pins; together with an assortment of all kinds of DENTAL INSTRUMENTS and other articles needed by the Profession.

All orders promptly filled.

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CAUTION.

SUCH OF THE PROFESSION AS DESIRE TO USE THE

GENUINE

LAWRENCE'S AMALGAM,

Are cautioned against purchasing of parties who claim to manufacture such Amalgam from my Formula, and with my consent, as no one has either the one or the other.

The guilty parties will soon be brought to grief; meantime

Purchase only of Responsible and Well-known Parties,

If such are accessible, otherwise send direct to the undersigned, sole manufacturer and proprietor,

A. LAWRENCE,
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THE

DENTAL TIMES.

VOL. V. PHILADELPHIA, APRIL, 1868. No. 4.

ANÆSTHESIA.

BY ELIHU R. PETTIT, D. D. S.

Anæsthesia, (from Gr. *a*, privative, and αισδανομαι, "I feel," "privation of sensation,") refers to "that condition of the system in which a loss of sensibility is produced in the whole or a part of the body." It is often induced for the purpose of relaxing spasm, or relieving the pain of parturition or of disease; but most frequently to prevent the suffering and shock to the nervous system, of the various surgical operations. It is said to be *general* when all power over the body and mind is lost, and *local* when only a particular part of the body is affected, the brain and the rest of the system remaining in a normal condition.

General anæsthesia is usually produced by the inhalation of the most volatile forms of various chemical agents, the effects of which are transitory. The substances which have been used for this purpose, at different times, are the several kinds of ether—acetic, nitric, sulphuric, &c.,—chloroform, naphtha, carburetted hydrogen, protoxide of nitrogen, aldehyde, benzine, amylene, &c., but none have proved so successful as sulphuric ether, chloroform, and nitrous oxide or the protoxide of nitrogen, which are now used almost exclusively. They all act upon the nervous system through the medium of the blood, producing a deep, but transient, state of intoxication.

The ancients sometimes used drugs to benumb the nerves, but "inhalation was employed for this purpose only in the use, in the East, of the mandrake (*atropa mandragora,*) and the hashish (*cannabis sativa,*) in the form of vapor."

It may be stated, as a general rule, that the duration of anæsthesia is in proportion to its completeness, and length of process of inhalation.

Only those substances which are commonly used to produce *general* anæsthesia will be here noticed, together with their administration and effects.

ETHER, (ÆTHER FORTIOR; U. S.)

Ether is a colorless liquid, of a strong and sweet odor and pungent taste. When perfectly pure it has a sp. gr. of 0.713, and boils at 95° F. It is usually considered an oxide of ethyle, its formula being $C_4 H_5 O$. It contains one atom of water less than alcohol contains. It does not freeze at 166° below zero. It is very inflammable and volatile. Its evaporation in the open air takes place so rapidly that a considerable degree of cold is produced. The density of its vapor, compared with the air, is as 2.586 to 1. When pure it is neither acid nor alkaline in its reaction; but after being exposed to the air and light, a little acetic acid is formed in it. It is procured by distilling alcohol in a mixture with sulphuric acid, and then purified by various means.

For administration by inhalation, ether should be perfectly pure, *i. e.* "free from any acid used in its preparation, and from uncombined alcohol." Those who administer it cannot be too careful in regard to its purity, which should always be tested before using. It should have a sp. gr. of not more than 0.728, and should "*boil actively* when a test-tube half filled with it is held enclosed in the hand, and a small fragment of glass is dropped into it." It should not redden litmus.

When ether is inhaled, there is first a glowing or burning sensation in the fauces and larynx, an increased secretion of saliva, a slight disposition to cough, and sometimes oppression. These, however, continue but a short time, and are succeeded by a feeling of warmth and sense of comfort and exhilaration. The pulse generally becomes quickened at the outset, and the breathing more rapid. More or less excitement or restlessness may succeed. There is often experienced a pricking sensation, with numbness; then dizziness and disposition to repose. Perversions of the senses often attend the beginning of etherization. Sensibility to pain may be abolished, and the sense of touch remain unimpaired. The other senses gradually become impaired or suspended, and a state of complete insensibility to external influences succeeds, "while the mind is often filled with a rapid succession of ideas."

When the patient is entirely under the influence of the ether, the eyeballs are upturned and the pupils dilated; the breathing is slow and deep; the pulse is generally natural, but sometimes quickened and irregular; the skin cool and moist; the face usually flushed and expressionless; the veins of the forehead turgid, and the eyes suffused. The loss of sensibility precedes that of mobility, and begins at the nerves of the periphery, gradually extending to the nerve centres. Experiments upon animals have shown that the nerve centres are influenced in the following order: first, the cerebral hemispheres; second, the cerebellum; third, the spinal cord; fourth, the medulla oblongata; fifth, the sympathetic system.—(Anstie.) "Excessive rapidity of circulation in ether-narcosis must be attributed to a partial paralysis of the sympathetic system."—(Anstie.) Of the special senses, taste and smell are first abolished, owing, probably, to the direct action of the ether upon those organs; then, hearing grows dull and sometimes perverted; next, the sight becomes dim; and, lastly, the sense of touch is lost. Sometimes the sight becomes very clear and distinct, or the hearing may remain perfect throughout the whole operation. The blood of etherized persons is said to be darker and more fluid than is natural. The previous use of alcohol or opium renders persons less susceptible to the influence of ether; or the system may become accustomed to its use, in which case chloroform may be employed.

Ether should not be administered when there is great weakness or exhaustion, disease of the lungs, severe organic disease of the heart, or predisposition to syncope. It should be avoided in acute inflammations and plethora, or when there is any affection of the brain or tendency to any, or to hemorrhage; and, also, in epilepsy. It should never be employed immediately after a full meal, lest emesis should be induced.

When about to administer ether to a patient for the extraction of teeth, inquiry should be made as to any idiosyncrasy, or the existence of any of the diseases which are contra-indicated; the quality and rapidity of the pulse should be noticed; the mouth should be examined, and the order in which the teeth are to be extracted decided; the forceps and other instruments which may be needed should be placed within easy reach. It is well, also, to take precautionary measures, by having some ammonia, &c., at hand. Care should be taken that the clothing about the neck be not so tight as to interfere with the circulation.

The simplest, and one of the best inhalers, is a soft, cup-shaped sponge, sufficiently large to cover both the mouth and nostrils. This should be washed frequently and thoroughly, first with alcohol and then with water, to free it from the impurities which may have collected in it. The principal objection to its use is, that there is considerable waste of ether by evaporation.

Everything being in readiness, and the patient placed in the chair in such position as will be most convenient for the operation, he should be instructed to empty the lungs, as nearly as possible, and then to breathe with long and full inspirations. When the skin is very delicate, it may be guarded from the irritating properties of the ether by a thin coat of oil or glycerine. Having poured from fl. ℥ss to fl. ℥j of ether upon the sponge, or sufficient to saturate its interior, it should be held a short distance from the face at first, gradually bringing it nearer as the lungs become accustomed to the vapor, and removing it at each expiration, so that the cells may not become charged with the carbonic acid gas given off from the lungs, and which otherwise would be breathed again. The full effects of the ether should be obtained as rapidly as possible, *taking care, however, to admit a sufficient quantity of atmospheric air*, as ether itself is not a supporter of vitality. "But under the circumstances of *very rapid* saturation of the blood with a large dose of sulphuric ether, the course of narcosis is materially disturbed, and tends to the immediate production of dangerous or even fatal symptoms."—(Anstie.) "During the whole process of etherization the fingers should be kept upon the pulse, and if it become feeble and slow, the sponge should be removed until the circulation becomes more free." The breathing, also, should be carefully watched.

It takes from one to twenty minutes, or longer, to produce the full effect of ether, the average being probably from three to seven minutes. The quantity of the liquid necessary varies greatly, but usually from fl. ℥ij to fl. ℥iv are required. It may be known that the patient is insensible by the general muscular relaxation, the eyeballs turning up, the eyelids closing, and the patient appearing as if in a deep sleep. But probably the best test is the excitability of the eyelids: "if they contract on being touched, the proper degree of insensibility has not been attained."

Inhalation should not be continued after unconsciousness has appeared, on account of the risk of suspending the respiratory functions; but, if there should be signs of approaching consciousness before the operation is complete, it may be resumed, provided no danger is to be apprehended from the blood interfering with respiration. Unless several teeth are to be extracted, it is not necessary that unconsciousness should be produced, but only insensibility to pain, which may be tested by lancing the gum, or cutting it with the finger nail.

Consciousness usually returns very soon after the vapor ceases to be breathed. There may remain for some time a general sense of weariness, the removal of which a long walk in the open air may tend to hasten. Sometimes there is a restless anxiety, or there may be some hysterical phenomena which are almost exclusively observed in females; but generally the after effects are of no consequence, and soon pass off.

As a matter of interest to the dental profession it may be stated that "the first operation ever rendered painless by ether (namely, the extraction of a tooth,) was performed by Mr. Morton, a dentist of Boston, on the 30th of September, 1846," although ether was known long before that time.

CHLOROFORM, (CHLOROFORMUM PURIFICATUM, U. S.)

Chloroform is a clear, colorless liquid, with a fragrant odor and sweet taste at first—afterwards becoming hot and pungent. It has a sp. gr. of

1.490 to 1.494, and boils at 141° F. It is a terchloride of formyle, being composed of three equivalents of chlorine and one of formyle, and having for its formula, $C_2\ H\ Cl_3$. It is very slightly soluble in water, but completely so in ether or alcohol. It is not inflammable, but its vapor burns with a green flame and with smoke. It is very volatile. Its vapor is much heavier than air. In its reaction it is neither acid nor alkaline.

Chloroform is employed for the same purposes for which ether is used. Its administration as an anæsthetic was not proposed until 1847,—sixteen years after its discovery. When of the officinal density, it contains a small portion of alcohol. This counteracts, to some extent, the tendency to decomposition which it possesses when perfectly pure, while the quantity which it contains is so small that it produces no injurious effects when inhaled. If rubbed on the skin, it should evaporate quickly, leaving no odor. If it stands this test, it is free from any injurious volatile substances.

The phenomena produced by the inhalation of chloroform do not differ materially from those produced in ether-narcosis, but they are much more strongly marked. The stage of excitement is extremely brief. "After the first two or three full inspirations, a feeling of warmth and excitation is experienced, followed by noises in the ears, a sensation of vibratory thrilling and benumbing throughout the body, with, at times, a rapid loss of sensation and motion, and at last of consciousness."—(Stillé.) At first respiration is quicker and more full, afterwards becoming slower. The pulse is usually increased in frequency and force, but soon falls nearly or quite to its normal condition. The pupil is sometimes natural, and sometimes slightly contracted or dilated. Insensibility is generally produced in one or two minutes, and may be kept up for hours, if necessary, by cautiously renewing the inhalation from time to time. "Dr. Snow observed the insensibility to increase for twenty seconds after the inhalation had been left off." Therefore its administration should not be continued after insensibility has been produced.

The following stages in anæsthesia by chloroform are given by Dr. Snow: "first, partial loss of sensibility, with consciousness; second, more or less wandering of mind and increasing insensibility; third, unconsciousness, with perhaps muscular contractions, and almost complete anæsthesia; fourth, entire muscular relaxation and some stertor; fifth, respiration becomes impeded, and death is imminent." The third, or the beginning of the fourth, is the proper degree for the performance of severe surgical operations. The second stage would be best for extracting teeth.

"Irregularity, marked slowness, or a gasping character of the breathing, are to be considered as signs of an irregular or excessive administration of the anæsthetic." When there is stertorous or laborious breathing, or both, the agent is acting upon the medulla oblongata, from which the nerves of respiration rise. Anstie says: "When impregnation of the blood takes place with *moderate* rapidity, the sympathetic nervous system is the *ultimum moriens*, and *death begins at the lungs*. When the circulation becomes *very rapidly* charged with a large proportion of chloroform, the narcotic effect may fall with such force upon the sympathetic system as to extinguish its vitality at once. One of the consequences of the *latter* is the production of instantaneous paralysis of the heart, which is *the* source of danger in surgical chloroform-narcosis." The full effects of chloroform by inhalation are always accompanied with danger to the patient's life, while, occasionally, unpleasant remote effects are produced, such as the loss of taste or smell.

The contra-indications for the use of chloroform are the same as for ether. Only the purest chloroform should be used for inhalation, as the impure produces irritation of the air passages. It is necessary to use greater caution in its administration than in the use of ether. It is administered in exactly the same manner as when ether is employed, but the quantity should be much less, varying according to the degree of anæsthesia to be induced, and the length of time it is to be maintained. It is best to begin with not more than from fl. ʒss to fl. ʒj, which may be repeated in two or three minutes, if the desired effect has not been produced within that time. According to Dr. Snow, "the vapor in the air breathed should not be more than six per cent." "Insensibility should be brought on *gradually*, and inhalation suspended when it is effected. The moment there is the least snoring, or failure of the pulse, the vapor should be withdrawn."—(*U. S. Dispensatory.*) The condition of the pulse and the breathing should be carefully watched; for, if they become irregular or feeble, the patient is in great danger; but if they continue normal, safety is assured.

When complete anæsthesia is to be produced, it is better that the patient should lie upon the back, with the head slightly raised; but where insensibility to pain, without unconsciousness, will prove sufficient, this is not necessary. If there should be congestion, spasms, &c., the inhaler should be removed until respiration becomes regular again.

Death may result from the administration of choloform in an improper manner, or by the vapor being too concentrated, thus excluding a sufficient supply of atmospheric air, or so saturating the blood that it no longer acts as a stimulant to the system. In an overdose the respiration is slow, the face livid, and the pulse becoming more and more feeble; or a sedative effect may be produced upon either the respiratory or the heart nerves. When death results from the sedative action upon the nerves of the heart, respiration may continue one or two minutes after the heart has ceased to beat. When symptoms of an overdose are observed, the patient should immediately be placed in a horizontal position, and energetic measures taken to restore respiration and circulation. Cold water should be dashed upon the face and chest, ammonia placed to the nostrils, and friction and strong stimulating applications to the extremities resorted to. If respiration has ceased, the tongue should be pulled forward from the glottis, and artificial respiration attempted by Marshall Hall's Ready Method, or by raising the arms over the head and bringing them to the side alternately. Electro-magnetism has also been recommended. When the patient has recovered sufficiently to swallow, strong coffee will prove advantageous. The post-mortem appearances of death from anæsthesia are those of asphyxia, namely, congestion of the right side of the heart, of the lungs, brain and other organs.

In a comparison of chloroform and ether, it must be confessed that the former possesses many advantages over the latter. It is more perfect in its action, while a much smaller dose is required; there is less depression afterwards, especially if the heart or lungs be diseased; its effects are much more rapid, and its inhalation is not unpleasant to the patient; its odor is not so persistent—that of ether lasting sometimes for twenty-four hours; its vapor is less inflammable, and, therefore, it may be employed at night with safety; it is also less liable to produce emesis; and, lastly, considering the quantity used, it is much cheaper. But while many deaths have resulted from its use, few, if any, have been caused by the administration of ether. Dr. Warren says: "Ether is generally safe; chloroform cannot be said to be safe in any case; no practitioner can be reasonably assured, in his own mind, that it will not prove fatal the next time he employs it." Taking into consideration its great danger to life, it is safe to say that, as a rule, it should *never* be used except when the necessities of the case *absolutely* require it.

PROTOXIDE OF NITROGEN.

This substance, usually called nitrous oxide, or laughing gas, was discovered by Priestley in 1776. It is a colorless gas, having a sweetish taste, but no odor, and is composed of one equivalent of nitrogen and one of oxygen. Symbol, NO. Sp. gr. 1.527. It is a supporter of vitality and of combustion. By a pressure of fifty atmospheres at 45° F., it is condensed into a liquid; it crystallizes at a temperature of from 100° to 150° below zero. It is obtained by heating nitrate of ammonia to 400° or 420° F., in a glass retort, thus decomposing it and forming two equivalents of nitrous oxide and four of water.

When inhaled, nitrous oxide produces intoxicating and anæsthetic effects upon the system. When used to produce anæsthesia, it should be pure and unmixed with the atmosphere. In its manufacture care should be taken not to heat the salt too rapidly or too highly, as it may be volatilized and cause severe irritation of the air-passages when breathed; or, a poisonous gas (hyponitrous acid) may be formed. This may be removed, however, by passing the gas through a solution of caustic potash. The nitrate of ammonia, from which the gas is obtained, sometimes contains a little hydrochloric acid, which a solution of the protosulphate of iron will remove. Although with care nitrous oxide may be made perfectly pure, if the salt be pure, yet it is safest, and therefore best, to wash it by passing it through water and saturated solutions of proto-sulphate of iron and of caustic potash. The water washes out the excess of nitric acid usually left in the salt to whiten it.

In administering nitrous oxide, an inhaler large enough to cover both the mouth and nostrils should be used. This should fit closely to the face, so as to exclude the atmosphere.

The use of nitrous oxide is contra-indicated in the same diseases in which the administration of ether should be avoided. Its inhalation produces some acceleration of the pulse, and, if continued too long, the breathing becomes labored. These indications should be carefully noted. No muscular contractions are induced when the gas is unmixed with the atmosphere. Anæsthesia is generally produced in from thirty seconds to two minutes, snoring usually being the first indication of it. There is also muscular relaxation. It generally passes off very rapidly; therefore, when there are several teeth to be extracted, or inflammation exists, it is better to use ether. Its advantages over ether are, its being a supporter of vitality; its more rapid production of anæsthesia; the brief period of its effects; its rapid elimination from the system; and the lack of subsequent depression. It does not cause emesis, unless administered very soon after eating. Its great disadvantage is the recovery from its anæsthetic effects usually taking place too soon to permit the extraction of more than three or four teeth, the removal of which is not difficult.

If alarming symptoms should be produced by the inhalation of nitrous oxide, the patient should immediately be placed where a full supply of fresh air may be obtained.

In considering the comparative merits of ether, chloroform and nitrous oxide, for the extraction of teeth, it cannot be doubted that the first named will prove best when several teeth are to be removed, especially if circumstances should render their extraction peculiarly difficult; while the last may be administered when not more than two or three teeth are to be extracted at one sitting. Chloroform, as has been before remarked, should seldom or never be used on account of its great danger to life.

The importance of the discovery of anæsthesia cannot be estimated. When we consider the amount of suffering it has been the means of preventing, and that annually, by its use in the performance of severe surgical operations, thousands of valuable lives are saved from an untimely grave, with what devout thanksgiving should our hearts be raised to Him, "from whom cometh every good and perfect gift," for this particular additional manifestation of His love to man.

MANUFACTURE OF GOLD FOIL.

BY WM. H. EAKINS.

Gold foil being one of the principal materials used by the dental fraternity, it seems obvious that they should be familiar with the various manipulations adopted in the process of its manufacture.

A great variety of modes have been used with the view to remove particular difficulties, or to find the means to accomplish certain peculiar results; and it is from a desire to render these processes intelligible to those not thoroughly informed, that I have been induced to write upon the subject.

In the progressive development of any branch of discovery, there are circumstances and conditions constantly occurring that demand attention to render the particular subject complete in its details. Particularly is this true of dentistry, and that portion devoted to the materials used in filling cavities in teeth.

The substances used for this purpose should have the required properties. If a metal, it should have the quality of adhesiveness. It should be capable of being formed into a compact solid mass. It should be malleable, laminable, ductile, and possess, necessarily, the cohesive property. It should be capable of taking a polished surface, and of forming perfect edges or margins.

The practical difference between analysis, assay and refining, consists in this: the analysis, if properly made, determines the nature and qualities of all the parts of the compound; whereas, the object of an assay consists in ascertaining how much of the particular metal in question may be contained in a certain determinate quantity of material under examination. Refining consists in clearing away all the impurities of a metal.

Gold can be refined by several methods. The one practiced by some is called cupelation, and is conducted in a furnace within a vessel called a cupel, composed of calcined bones or bone ash. To the alloy about ten times as much lead is added, which promotes the vitrification and calcination of such imperfect metals as may be in the alloy, so that they may be carried off in the fusible glass that is formed, or drawn within the pores of the cupel. The operation is allowed to proceed until all agitation has ceased, and the surface has become bright. It is then allowed to cool slowly, leaving behind it the gold and silver only. The separation of the silver from the gold is called quartation; this is accomplished by fusing it with so much silver that the gold does not exceed one-fourth of the mass. The alloy is then acted upon with nitric acid, which dissolves the silver and leaves the gold as a dark brown powder, which, when fused, assumes the peculiar color of gold. The solution of nitrate of silver, left in the last operation, is diluted with six or eight times as much water, and precipitated by common salt or a solution of it. One ounce of salt will precipitate rather more than two ounces of silver. This falls in the form of a white curdy powder—the chloride of silver,—insoluble in any acid, but soluble in ammonia, cyanide of potassium, &c.

The solution is now a solution of nitrate of soda, which is thrown away, and the chloride washed several times. If this chloride of silver be fused it forms a mass which cuts like horn. To reduce it to metal, we cover it with water, acidulated with hydrochloric acid, and introduce a piece of zinc, which gradually reduces the whole mass from white to gray. We have, before the operation, chloride of silver and zinc; after the operation, silver and chloride of zinc. Throw the solution away and digest the silver with dilute muriatic acid for a few moments, wash dry, and melt in a crucible, with a little borax to assist fusion.

The above method is used by some gold foil-makers, and also at the U. S. Mint, but I believe it impossible to derive as good results as from the process now to be described.

No single acid will dissolve gold, but this is easily accomplished in nitro-muriatic or aqua regia, a mixture of one part of nitric and two or three of muriatic acid, chlorine being apparently the solvent. The operation is hastened by the aid of a gentle heat. Gold coin or other gold is placed in a flask, and the acids turned on. It is then placed on a sand or water bath, and a gentle heat applied. In a short time the gold, along with copper and other metals, is dissolved. Silver, rhodium, iridium and osmium are all precipitated—the silver in a state of chloride. The gold solution is now carefully decanted into an evaporating dish, leaving in the flask all the insolubles. The dish of gold is placed on a sand bath, and slowly evaporated to about one-fourth of its original bulk. It is then diluted with about one gallon of pure water to the ounce of gold. We have now to separate the gold from the copper, &c. This is done by precipitation. Most metallic solutions precipitate gold from its solutions in nitro-hydrochloric acid. Lead and silver precipitate it of a dull purple color; copper and iron throw it down in a metallic state; bismuth, zinc and mercury likewise precipitate it, zinc throwing it down a purple color; lime, magnesia, the alkalies, gallic, tannic and oxalic acid, also hydrogen, reduce or precipitate it. These deoxidizing agents, such as hydrogen, formic acid and the metals, probably act by decomposing water, the hydrogen of which depriving the gold of its chlorine. But some of these precipitations will throw down the other or base metals as well as the gold. The surest, most economical, and which produces the best result, is the protosulphate of iron—green vitriol—which leaves the copper, iron, &c., in the solution, and precipitates the gold of a chestnut-brown color. This is absolutely pure, with, perhaps, a slight trace of oxygen, giving it the brown color, which is expelled at a red heat. For every ounce of gold, six or seven ounces of sulphate of iron, dissolved in hot water. The reason for using hot water is, that the sulphate of iron more readily dissolves in it than in cold water. After carefully filtering, the two solutions are incorporated, and, when precipitated, the solution is decanted. The gold is then washed with hot distilled water, and then digested with dilute hydrochloric acid, then washed clean, dried, and it is ready for melting. When the reduction takes place in a diluted solution, the metallic gold appears as a blue powder as long as it is suspended in the liquid. The gold is transferred to a crucible, with borax and saltpetre, and gradually heated until it is at a strong red or white heat, when it is cast in an iron mould, previously heated and slightly oiled, to prevent adhesion. There will probably be some flux on the surface, which can be forged off. It should now be made of a dull red color, and dipped into a pickle composed of one part sulphuric acid to six of water, after which it should be annealed and subjected to the roller.

[TO BE CONTINUED.]

ORIGIN OF CARIES ACCORDING TO DR. LEBER'S OBSERVATIONS.

BY DR. AD. ZU NEDDEN.

(Translated by H. HIRSCHFELD.)

The main object of Dr. Leber's observations was to investigate more thoroughly the immediate nature of the microscopic changes in the dental tissues produced by caries, especially that of dentine, as it has been already described by Tomes in his "System of Dental Surgery," and by Neuman "About the Nature of Dental Caries."—(*Langenbeck's Archiv.*, vi. i.)

If the layer of softened, brownish dentine, which extends to a certain depth under the surface of carious cavities is examined, the remarkable changes in the dental tubes, already discovered by Tomes, are obvious. They are considerably thickened and enlarged, filled with a granulated or more homogeneous and glittering mass. In the normal condition, these tubes are filled with a soft dental fibril, (discovered by Tomes,) and are the continuation of the dentine cells of the pulp, and separated from the inter-tubular substance by thin but resistant walls, which can be isolated by maceration in acids. In a transverse section, the peripheries of the tubes are not seen as separated membranes. In a transverse section of carious dentine, the thickened dental tubes present themselves as bright or fine dotted disks, generally surrounded by a broad ring, the transverse section of the walls. This enlargement is often so considerable that the walls come in contact, and if then acted upon by acid, which expands the substance contained in the tubes, form polygones, by flattening each other. Again, it is stated, that in a vertical section the contents of the enlarged tubes show themselves as changed into minute cylinders. These enlarged tubes are easily isolated by maceration in nitric or muriatic acid, and the gradual change to their normal condition can be observed on the boundaries of the healthy parts. Neuman advocates the view that these changes are essentially a vital process. He distinguished two series of pathological changes, which are, according to his observations, not always combined. First, the *thickening of the walls*, which does not, necessarily, depend upon a vital process; and, secondly, *the appearance of the cylindrical formations* in the interior of the tubes, which he considers to be cellular elements. The dentinal fibrils contained in the tubes expand in consequence of a pathological irritation, and become arranged in rows of cellular elements.

The test for the correctness of this view, is given by the investigation of caries in artificial teeth, which is acknowledged by Neuman himself in his work. It is a fact, long known, that *human* or *ivory* teeth, inserted in the mouth, likewise become decayed, and this fact was always brought forth by the followers of the chemical theory of caries, to prove the correctness of their views. Since, however, the microscopic changes just described, have become known, this explanation in opposition to the argument can be brought: that it is only a similar process to that of caries in living teeth in which the characteristic microscopic changes, based on vital reaction, are absent. Neuman, by the investigation of an ivory piece inserted in a bone to effect a cure, and which became carious, was not able to find a trace of these changes in the dental tubes, and hence, came to the conclusion that this peculiarity would also be absent in the caries of inserted teeth; but such is not the fact. We found these same changes exactly corresponding in three inserted human and several ivory teeth. In the latter, the expansion of the tubes was developed to a degree that we have rarely ever seen in living teeth. Without mentioning other arguments which might be brought against Neuman's opinion, the explanation of caries by the vital process is not more sufficient. On the contrary, we are more and more compelled to accept the opinion that it is produced by the parasitic growth of leptothrix buccalis.

The surface of carious cavities are always covered with slimy masses of leptothrix. This consists partially of a felt of very minute tubules, blended with equally small spores, (germs,) with hair-like projections on their surfaces, composed partly of extremely minute accumulated granules, which, according to Vallier, circulate freely as single spores in the fluid, but after some time are deposited and appear in enormous quantities in the slimy substance between the teeth and in carious cavities. These are very likely nothing else than the so-called "denticolæ" of Ticinus, which he considers to be infusoria, and attributed to them an essential part in the carious process. These leptothrix masses also extend considerably into the softened dentine. In the sections, near the surface, are found small remnants of carious dentine, enclosed in a spongy growth of this kind. Going deeper, these remnants become larger. Gradually wide tunnels, filled with granulated vegetable masses, are seen to be dispersed in the dental tissue. A proof that it is a vegetable growth, (beside that of the peculiar appearance of the granules,) is the reaction by iodine and acids, which give to them a beautiful violet color. This reaction has been already recognized by Leyden and Taffé as leptothrix in putrid sputis. By means of this reaction, we can satisfy ourselves that the substance contained in the enlarged dental tubes likewise consists of these granules. These tubes take, also, the violet color, and present a beautiful aspect in transverse sections. Hence it is evident that these fungus elements grow into the tubes and expand them. In a more advanced stage, the above-mentioned tunnels appear filled with vegetable granules, to complete the entire destruction.

The question is now whether this vegetable appears always and in every period of the process.

In the commencement of caries, enamel and dentine are affected on one spot by the influence of acids, and are thus softened and prepared for the penetration of the filament. For the destruction of the enamel, this growth seems to be less important, although their presence can always be proven; but as soon as the protecting enamel is destroyed on one spot, these plants grow into the dental tubes, and by expanding them, facilitate the conveyance of the acid fluids into the depths of the tooth. Hence it is that the process of destruction is much more rapid in the dentine than the enamel. While the latter is affected by acids in a much shorter space of time, they extract from the dentine only the lime portions, without breaking up the structure.

The deposits of lime so frequently met with in the dental tubes during the progress of caries, are also attributed to vital processes.* These are especially found on the line of demarcation of the pathologically changed substance toward the healthy parts. We can, however, also prove their presence in ivory teeth, and are therefore bound to believe that the acid solutions of the salts of lime in the softened parts are conveyed in the tubes toward the pulp, and are here brought in contact with the alkaline fluids contained in the normal tubes, and are consequently precipitated.

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* See "Tomes System of Dental Surgery," p. 363.

AN EXTRAORDINARY CASE OF ENTOZOA.

BY W. T. WALLS.

The human body, like that of the inferior animals, may be inhabited by numerous parasites of different species. The heart, the kidneys, the liver, the brain, the muscles, and, in fact, almost every organ of the human body has been at times infested by these unsightly animals—some small and others large—each having its respective place to dwell in. Mr. Heysham, a medical practitioner, relates a case where he extracted three worms from the antrum of a woman sixty years of age,* the first of which was over an inch in length and as thick as a goose-quill. It is also related in Harris's Principles and Practice of Dental Surgery, page 897, that Deschamps found a worm four inches long in the maxillary sinus of a soldier whom he was dissecting. Copeland, in his valuable Medical Dictionary, gives an extended history of the different varieties of these animals, and of which the following is narrated: "Plutarch refers, in his ninth question of the eight book of his *Symosiacon*, to the statement of Agatharchides, of Cuidus, the geographer and philosopher, that the people on the Arabian side of the Red Sea suffered many strange diseases; among others, worms, like little snakes, came out upon them, which gnawed their legs and arms, and, when touched, retracted and coiled themselves up in the flesh, and gave rise to the most insupportable pains."

Although we have never seen an account of where one of these parasites originated and was nourished in the pulp cavity of a tooth, yet from the following, which come under my own observation, it would not seem to be entirely impossible.

Mrs. F——, a respectable lady of this place, aged thirty years, in good health and of sanguine temperament, called at my office in the latter part of November, 1867, to consult me in reference to a tooth, the right inferior dens sapientiæ, which, she said, had been annoying her for several months. In further describing her trouble, she said there had been a sense of fullness at times within the tooth, which she could hardly endure, more on account of the disagreeable sensation than of the acute pain.

On examination of the mouth, I found the teeth and gums comparatively good, except above the first bicuspid, the crown of which had entirely decayed, the roots still remaining. I also found the tooth complained of in an unhealthy condition, presenting a necrosed appearance. The surrounding parts were much inflamed and somewhat spongy. The enamel appeared to be good, although I could not ascertain the true condition of its anterior approximal surface, it being forced close to the second molar.

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* See Cooper's Surgical Dictionary.

After a careful diagnosis, I insisted on the removal of the tooth, but the patient not acceding to my request, I applied tinct. of aconite and laudanum, in equal proportions, to the jaw, which seemed to irritate rather than relieve the pain. I also prescribed an opiate, but with no permanent relief.

She remained in this condition until the tenth or twelfth of the December following, when she called to have it extracted. At this sitting the tooth presented a changed appearance. The front portion of the crown had broken away, and something protruded up between and out of the broken tooth, the fourth of an inch or more. This proved, much to our surprise, to be a worm, alive and apparently in good condition, measuring four and seven-eighths inches in length, and twice the size of a hair worm. When first seen it was a light flesh-color, but soon after death it changed to a dark stone. Under the glass I could see nothing peculiar, except a surplus of cuticle, which was coarse, lying in folds, presenting a porous appearance.

I applied rhigoline spray to the gums and removed the tooth without much effort. This I found to be a mere shell, the dentine entirely absorbed, there being but little left of the crown but the enamel. In the root all had disappeared but the cementum and sufficient dentine at the neck to give the external the appearance of a perfect tooth. It had but one large conical and straight root. The tooth itself was larger than teeth generally of its kind.

My friend, Dr. Layton, naval surgeon, and a man of acknowledged ability, examined it and decided with myself, that it had its origin within the pulp cavity of the tooth, and that that was its proper habitation as much as the intestines are the home of the tænia. What the peculiarities of the system or local parts may be to produce them is a matter which I feel at present incompetent to explain, and would, therefore, respectfully leave the subject to those of the profession better informed and more experienced.

Lawrenceburg, Ind.

Remarks.—While we have no reason to doubt the truthfulness of the foregoing extraordinary statement, we should have preferred to have had some collateral evidence in its support, not necessarily for publication, but to satisfy the incredulous.

We can see nothing impossible that a worm of the size described should have had an existence in the body of a tooth; but it does seem improbable that such a parasite could have been deposited in the pulp chamber in any other way than through a carious cavity. Once within the pulp chamber, its possibilities of growth would depend entirely on surrounding circumstances. In our judgment, no other explanation is satisfactory. We do not regard the apparent fact that the enamel was unbroken of much moment. The opening may have been overlooked on the approximal surface.—Ed.

A VIEW OF MAGITOT'S SUR L'OSTEO PÈRIOSTITE ALVEOLA DENTAIRE.

(Translated from the German of Dr. Ad. zu Nedden

BY H. HIRSCHFELD, STUDENT PENNA. COLLEGE OF DENTAL SURGERY.

The author signifies by this name, the disease which we term pyorrhœa alveolaris, (discharge of pus from the alveola.) In regard to the pathologic-anatomical phenomena, which is here taken into consideration, it is said: at the commencement of inflammation is seen near the neck of the tooth a slight injection, with dissimilar condensation and softening of the membrane, generally disposed in irregular spots. Somewhat later the periosteum becomes slightly loosened at the part first attacked, while the congestion is extended to the apex of the root. The uncovered cementum becomes necrosed the moment this loosening commences. This part presents a rough surface, in consequence of the cementum having disappeared by absorption in some spots, while it still remains intact in other places.

Whilst this alteration extends toward the apex of the root, one side of the root only is attacked at its whole length. On single-rooted teeth the entire surface is involved. In the further progress of the disease, the parts of the periosteum and cementum first attacked disappear entirely. This process is continued to the apex until the dentine is entirely uncovered. It is at this period that the gum and borders of the alveola participate in the changes, and chronic inflammation, with sponginess and ulceration of the borders, are developed. The alveola is charged with healthy pus, which surrounds all diseased parts, and at times the pain becomes very acute. The parts then become the seat of a violent inflammation, combined with increased discharge of pus, elongation and mobility of the tooth. The microscopical investigation exhibits the general elements of inflammation in the affected tissue, flaps of the mucous membrane, bundles of *oidium* and *leptothrix** and masses of phosphates and carbonates of lime. In the more advanced state, when the periosteum and cementum are nearly destroyed to the apex of the root, we find in the remaining portions of the periosteum, near the orifice for the entrance of the nerves and vessels, more or less vegetable fungus growth, which furnishes the pus exuding from the alveola. These parts are liable to congestion, increase in volume, and then return to their normal state. This explains the phenomena of elongation of the tooth toward the end of the disease. It will be found that the cementum and periosteum have entirely disappeared from a tooth expelled in this way. The tooth has lost its connection with the maxilla. Sometimes absorption of the cementum at the apex of the root has not taken place, but, on the contrary, has been enlarged. This, however, does not change anything in the progress or end of the disease.

Caries is not in an intimate relation to this disease, and may be considered an accident when it does exist.

The accumulation of tartar, so frequently met with on such diseased teeth, and which might be supposed the producing cause, is only of secondary importance. The persons attacked are generally healthy, of sanguine or bilious temperaments, but one cannot point out general or local causes. Habitual constipation is a cause or accompaniment as well as dyspeptic symptoms.

Some general derangements have considerable influence upon the origin of osteo-periostitis and cause the teeth to drop out, as scorbutic eruption, fever, gout, anæmia, (after long suffering.) We find this especially in albuminuria and diabetes; in the latter the phenomena is very constant, and even one of the first indications of the disease.

The author then describes, in his own skillful manner, the whole well-known process of this disease, and points out the principal diagnostic symptoms. In the beginning, a discoloration, afterward an elongation and movableness of the tooth, followed by the loosening of the gum and sup-

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*OIDIUM. (English: *Thrush*; German: *Mundschwammchen*; French: *Muguet, genre des champignons trichospores.*)

The spots or elevations which characterize this disease, and apparently pseudo-membranes, are not false fibrous membranes, but are formed in the greater part by the spores, filaments and tubules of a vegetable, mixed with epithelium cells of the mucous membranes.

This plant, "oidium albucans," consists of tubulous filaments, gathered in clusters and ramifying from these in different directions. It requires only one spore to send forth these prolonged tubules, and this spore preserves its form in every period of development.

Leptothrix, (*Gr.* a hair.) In the deposits on the surface of the teeth, or in the accumulations between them, in the cavities, in certain liquides vomis, or in the liquid contained in the stomach after death, are found a considerable number of minute filaments, of a certain specimen of algæ, called leptothrix buccalis. The filaments which form the irregular tubes of the plant, are straight or slightly curved. In the accumulated substance between the teeth, they attain in two or three days the length of one-hundredth of a millimetre, which is their perfect state of development.—(*Charles Robin.*)

puration of the alveoli. Gingivitis is mainly distinguished from osteoperiostitis by this, that it never confines its attacks to one or more of the teeth like the latter, but extends to the greater part or whole of the gum. In gingivitis, the loosening of the tooth is secondary, while in osteo-periostitis it is primary, and shows itself generally after a long and violent attack. If in such a case suppuration occurs, it is only on the free margin of the gum, rarely in the interior of the alveola. Finally, gingivitis seldom causes the dropping out of the teeth, and that only in the worst cases.

Another similar disease is the spontaneous absorption of the roots of the permanent teeth. To distinguish this, it is sufficient to remark, that it never simultaneously attacks several teeth, or one after another, but always singly, and that it is invariably the consequence of a "trauma," (wound or defect,) or pulp gangrene. Chronic periodontitis with acute paroxysms, loosening and often copious suppuration, has also some similarity. It follows generally, however, a severe preceding lesion, deep caries, incomplete luxation, and is always very painful.

The treatment which the author recommends, and in many cases, according to his observations, successful, is a new one. If it should prove to be good, it will meet the long-felt need of many dentists and patients. Magitot uses, as a local caustic, the crystallized chromic acid, first in solution, and afterwards the dry substance. After having removed the tartar, mucous, &c., and raised the gum slightly, he applies the remedy with a small stick, on the point of the neck of the affected tooth, every six or eight days. The tooth and its surroundings must be covered for some minutes with lint or cotton. The first application should be very diluted, for it produces always an exaggeration. In a short time the strength of the caustic may be gradually increased. As an assistant, six or eight lozenges of 0.28 centigr. of chlorate of potassa are given, which should be dissolved in the mouth. Should the stomach become affected by the internal use of this remedy, a local application of the chlorate of potassa may be substituted, or a mixture of this and an equal part of borax. If it is painful to the teeth, astringent tinctures and mouth-washes should be used. Local bleedings are well in place during the periods of more acute inflammation.

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Antidote for External Poisoning by Cyanide of Potassium.—This substance is extensively used in electroplating and other arts, where its external poisoning effects produce many painful and troublesome ulcers on the hands of the workmen. The foreman of the gilding department of the American Watch Works writes to the Boston *Journal of Chemistry* that experience has taught him the most effectual remedy that can be employed in such cases, which is the proto-sulphate of iron in fine powder, rubbed up with raw linseed oil.—*Scientific American.*

ANOMALOUS CASES.

Would it not be well if all dentists kept a record of anomalous cases falling within their practice, or coming under their observation? Some have occasion to regret they have kept no such diary. Every one of any length of practice might tell of some peculiar case at least. The report of such to the profession is of interest, resulting in the advancement of science and of the profession, as well as in the public weal. I make report of two cases that have come before me recently. The first may not be altogether novel, though not of frequent occurrence, I judge.

Mrs. M——, of fifty years, had a full artificial denture made. After wearing a year or more, she found something appearing through the gum about midway between the right lateral and the right central superior incisors. She supposed it to be a root that might have been left when her teeth were extracted. It destroyed the suction and it seemed best to remove it. It proved to be a perfectly formed cuspid in process of eruption. Here, then, we have a case of the cutting of eye teeth at the age of fifty. I send you the tooth, which you will find perfect and fair.

Another case is still more singular; at least I do not know such a case has been reported.

Mrs. Joy called on me with her colored servant, suffering severely from pain—"screwing pain" she called it—in left side of inferior maxilla. There had never been any development of teeth on this side of the mouth back of the bicuspids. With this exception, she had a perfect denture. I learned that she had had an operation performed about ten years before to remove an excrescence from the locality, minus teeth. This operation gave her relief for a time, but was not lasting. When I first saw her there was quite a widening of the jaw, back of the bicuspids, extending well back to the socket, so much so as to give quite a protuberance to the cheek. The gum was broad, seemed as hard as cartilage, and strained as a drum-head. I gave, as an opinion, that there was a tooth underneath, and advised she should go to the Massachusetts General Hospital for treatment. She did so, and I send you the record of the case.*

It would seem, from some occult cause, the first and second molars, back of the bicuspids on the left side, were never developed. It is thought the sacs of these, containing the embryo tooth, must have been in some way destroyed, or that dame nature was at fault from the beginning. In removing the excrescence a tooth was found which proved to be the dentes sapientia, and seemed to lay longitudinally on the jaw, the crown fronting the bicuspid. Had the same cause that destroyed the missing molars have extended to this wisdom tooth, destroying it in embryo, the patient would not have suffered as she did. As it was, this tooth could not get a normal development. Hence her intense suffering, from which she has found permanent relief by surgical aid, the operation being perfectly successful. She was kept under the influence of ether while the excrescence was being removed.

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* The record of hospital treatment has not been received.—[ED.]

What wonders are being done in the way of surgery under the benign influence of anæsthetics. Let me commend an article in the March number of the *Atlantic Monthly* to the dental profession. I wish I could do so unqualifiedly. I cannot, however, as the author ignores Horace Wells altogether as the modern discoverer of anæsthesia, while Morton is immortalized, so far as the author can immortalize a pretender. Can it be that this author has never heard of Wells, the dentist, in connection with anæsthesia? And is it so that he is not aware that this same Morton has been prevented hitherto from grasping the Congressional appropriation made to the discoverer, because there is some reason to believe that Wells was first in anæsthesia? Why speak of Morton as if there was none to contest his claims? It is to be feared the hand of Morton may be in this; or what shall be said of the cupidity, stolidity, stupidity, ignorance, of this learned author? A. A. C.

MILFORD, MASS.

A SUGGESTION IN PRACTICE.

Our life, with its sorrows and enjoyments, its difficulties and trials, may be compared to a picture of Mosaic—each particle a mere trifle, in itself, yet necessary to the complete whole. This must be my excuse, when, by suggestion, I endeavor to add one stone to the mosaic of a dentist's office. I am sure every dentist, by experience, has found how difficult and annoying it is, and how much time and material are wasted by picking up gold and tin pellets from a hard base. To overcome this he has, perhaps, placed his pellets on paper, velvet or a napkin. We grant all these materials to be a great improvement, yet they do not answer the desired purpose in every respect. By their softness, they facilitate the taking up of the gold, but, at the same time, they present another source of annoyance, in the frequent adherence of particles of their constituents to the metal, which interferes very much in the accomplishment of a good solid packing. One article, however, familiar to us all, spunk, contains all that we require. It is more soft and elastic than any of the above mentioned, and never troubles us with any of those little fibres, provided it is of the right kind.

I am well aware that many dentists have used this velvet-like spunk a long time, and may deem a communication upon so well known a fact unnecessary. To these I would say, that all instructive books and articles, important or unimportant, as they may be, are not written for those who know, but for those who are seeking information, and are by circumstances prevented participating in every advantage offered by the profession. A dentist has to struggle, each day, with so many accidents, which are beyond his power to control, that it becomes a duty to him to try and do as much as possible to facilitate his work. If this simple suggestion should add as much comfort to even a few of my professional brethren, as it has to mine and some of my friends, I shall feel amply rewarded. H. H.

COMMENCEMENT OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The annual commencement of the Pennsylvania College of Dental Surgery was held at Musical Fund Hall, on Saturday evening, February 29th, 1868.

After the forms usual on such occasions, the degree of Doctor of Dental Surgery was conferred upon the following members of the class:

GRADUATES, 1867–'68.

Benjamin Arango,	Cuba,	Caries of the Teeth.
W. H. Barrett,	Pennsylvania,	Inflammation.
W. M. Beardslee,	Pennsylvania,	Irregularities of the Teeth.
Edward Bedloe,	Pennsylvania,	First Dentition.
Yidefonso Bravo,	Cuba,	Salivary Calculus.
A. F. Davenport,	Massachusetts,	Etiology.
Charles O. Dean,	Ohio,	The Fifth Pair of Nerves.
T. Gonzalez,	Cuba,	Operative Dentistry.
Richard A. Gordon,	Cuba,	Diseases of the Antrum.
Emory J. Greene,	Pennsylvania,	Filling Teeth.
William W. Hoffman,	Pennsylvania,	Rise and Progress of Dentistry.
Nelson J. Haines,	Maine,	Neuralgia.
Canby Hatheway,	British America,	Diseases resulting from Caries of the Teeth.
Isaac H. Levy,	Pennsylvania,	Anæsthetic Agents.
Estanislao Martinez,	Spain,	Inflammation.
W. R Millard,	New York,	Therapeutics.
Thomas T. Moore,	South Carolina,	Peridental Membrane.
A. M. Myers,	New York,	Dental Pulp.
E. Henry Neall,	Pennsylvania,	The Preservation of the Teeth.
Theophilus L. Neff,	Pennsylvania,	Dental Hygiene.
Elihu R. Pettit,	Pennsylvania,	Anæsthesia.
George C. Pierpont,	New Jersey,	Caries of the Teeth.
Fred. Swartzlander,	Pennsylvania,	Mineral Plate and Block Carving.
P. T. Smith,	Iowa,	The Skin.
W. H. Stilwell,	Ohio,	Filling Pulp Cavities.
Charles S. Stockton,	New Jersey,	The Circulation of the Blood.
Samuel D. Strohm,	Pennsylvania,	Diseases of Dentition.
Emile De Trey,	Switzerland,	The Filling of the Teeth with Gold.
Joseph E. Valentine,	Pennsylvania,	Vulcanite as a Base.
Charles J. Watkins,	North Carolina,	The Extraction of Teeth.
John M. Whitney,	Ohio,	Anatomy of the Human Eye.

GRADUATES WHO HAVE BEEN IN PRACTICE SINCE 1852.

S. W. Sine,	Pennsylvania.	J. W. Little, M. D.,	New Hampshire.

The following list comprises those who matriculated for this, the Twelfth Session of the College.

MATRICULANTS.

F. Aguero,	Cuba,	
T. M. Aguero,	Cuba,	Dr. G. T. Barker.
B. Arango,	Cuba,	Dr. Brown.
W. H. Barrett,	Pennsylvania,	Dr. Barstow.
W. Baumgardner,	Maryland,	Dr. G. Foulke.
W. M. Beardslee,	Pennsylvania,	Dr. A. Beardslee.
E. Bedloe	Pennsylvania,	Dr. Kirk.
H. D. Bennett,	Illinois,	Dr. C. Wilkie.
G. Beysselance,	France,	Dr. G. T. Barker.
A. Branisholts,	Pennsylvania,	Dr. Graham.
Y. Bravo,	Cuba,	Dr. Eagleton.
J. Crymes,	South Carolina,	Dr. S. Baird.
J. Cunningham,	Pennsylvania,	Dr. R. A. Miller.
A. F. Davenport,	Massachusetts,	Dr. Davenport.
C. O. Dean.	Ohio,	Dr. Siddall.
N. C. Detweiler,	Pennsylvania,	Dr. J. Detweiler.
N. Ewing,	Kentucky,	Dr. N. Allen.
A. Ewing,	Pennsylvania,	Dr. Zell.
C. A. Fitler,	Mississippi,	Dr. Buckingham.
S. Tizzard,	Ohio,	Dr. H. Macomber.
R. R. Freeman,	Tennessee,	
Rafael Gonzales,	Cuba,	Dr. Wildman.
T. Gonzales,	Cuba,	Dr. Barker.
R. Gordon,	Cuba,	Dr. Buckingham.
J. Graham,	Pennsylvania,	Dr. Buckingham.
E. J. Greene,	Pennsylvania,	Dr Locke.
J. E. Griffith,	British America,	Dr. J. Barstow.
N. J. Haines,	Maine,	Dr. Haines.
T. P. Hamlin	Tennessee,	Dr. W. Morgan.
R. Hampton,	Alabama,	Dr. McD. Whitson.
G. Harwood,	Massachusetts,	Dr. A. Lawrence.
C. Hatheway,	British America,	Dr. Barstow.
J. R. Hill,	New York,	Dr. A. Waid.
H. Hirschfeld,	Prussia,	Dr. Sauer.
W. W. Hoffman,	Pennsylvania,	Dr. Howell.
H. W. Ray,	Illinois,	Dr. Brown.
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E. A. Perrossies,	Cuba,	Dr. F. Peyrellado.
E. R. Pettit,	Pennsylvania,	
G. C. Pierpont,	New Jersey,	Dr. W. Pierpont.
H. S Porter, M. D.,	Pennsylvania,	Dr. E. Neall.
C. B. Rohland,	Pennsylvania,	Dr. S. Guilford.

W. H. Roop,	Pennsylvania,	Dr. E. Neall.
H. H. Rothrock,	Pennsylvania,	Dr. J. M. Barrett.
F. Schlabach,	Pennsylvania,	Dr. H. Gernerd.
P. T. Smith,	Iowa,	Dr. N. Tulloss.
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W. H. Stilwell,	Ohio	Dr. O. A. Glidden.
C. S. Stockton,	New Jersey,	Dr. C. A Kingsbury.
S. Strohm,	Pennsylvania,	Dr. Moore.
H. Swain, M. D.,	Pennsylvania,	Dr. Carll.
F. Swartzlander,	Pennsylvania,	Dr. J. Rhoads.
F. R. Thomas,	Pennsylvania,	Dr. A. Prettere.
T. Tolon,	Cuba,	Dr. Buckingham.
E. De Trey,	Switzerland,	Dr. T. Spear.
J. E. Valentine,	Pennsylvania,	Dr. C. Valentine.
D. Van Buskirk,	Pennsylvania,	Dr. J. Andre.
C. B. Wagner,	Pennsylvania,	Dr. G. Rishel.
E. Waterbury,	New York,	Dr. S. Robinson.
C. J. Watkins.	North Carolina,	Dr. W. Johnson.
A. Way,	Pennsylvania,	Dr. C. Frost.
B. R. West,	Pennsylvania,	Dr. West.
J. D. White, Jr.,	Pennsylvania,	Dr. J. D. White.
J. M. Whitney,	Ohio,	Dr. J. Siddall.

The reports of the Demonstrators of Operative and Mechanical Dentistry are appended. We think they should satisfy the most incredulous members of the profession that dentistry can be better taught at an institution of this character, than by any other mode. A visit to our infirmary at any period during the session should, we think, convince any one of the advantages to be derived.

The reports of both Demonstrators comprises all the operations likely ever to occur in private practice, while at the same time many cases present that are never to be seen in the routine business of daily professional duties.

OPERATIVE DEPARTMENT.

Numberof Patients visiting the Clinic,	3966
Number for whom the following operations were performed,	2759

Gold Fillings,	1393
Tin Fillings,.	1091
Wood's Metal,	28
Hill's Stopping,	105
Amalgam,	20
Treatment and Filling Pulp Cavities,	359
Superficial Caries Removed,	76
Removal of Salivary Calculi,	204
Treatment of Periostitis,	43
Do Alveolar Abscess,	68
Do Inflammation of the Gums,	55
Do Partial Necrosis,	32
Do Diseased Antrum,	1
Do Irregularities,	57
Pivot Teeth Inserted,	15
Extraction of Teeth and Roots,	3986
Total,	7533

W. W. HOFFMAN, Reporter.

EDWIN T. DARBY, Demonstrator.

MECHANICAL DEPARTMENT.

157 *Patients were supplied with the following Artificial Dentures:*

Full Upper and Under Sets,		31
Full Upper Sets,		36
Full Lower Sets,		6
Partial Upper Sets,		87
Partial Lower Sets,		9
Teeth Mounted on Silver Base,		357
Do do Aluminium Base,		14
Do do Adamantine Base,		42
Do do Hard Rubber Base,		1599
Do do Porcelain Base,		28
Whole Number of Gum Teeth inserted,	1719	
Do do Plain Teeth,	321	
Number of Teeth Mounted for Patients,		——2040

Depositing Sets.

12 Full Upper Sets on Hard Rubber Base, No. of Teeth,	168	
1 Full Lower Set do do do	14	
2 Partial Upper Sets do do do	8	
8 Full Upper Sets on Metal Base, do	112	
3 Full Lower Sets do do	42	
6 Partial Upper Sets, do do	24	
4 Full Upper Sets on Metallic Base, with Rubber, No. of Teeth,	56	
1 Full Upper Set, Continuous Gum, do	14	
Number Gum Teeth,	421	
Do Plain Teeth,	17	
Do Teeth on Depositing Cases,		—— 438
Total Number of Teeth Mounted during the Session,		2478

J. M. Barstow, Demonstrator.

The evening being an exceedingly favorable one, the hall was densely crowded with an appreciative auditory, to witness the ceremonies of the occasion.

The Valedictory to the graduating class was delivered by Geo. T. Barker, D. D. S., Professor of Dental Pathology and Therapeutics.

The usual evidences of interest were exhibited in the graduates, by a beautiful display of flowers, which were presented to them subsequently to the conferring of the degrees.

As the winter had been an unusually instructive and pleasant one, we doubt not the closing exercises were felt by all as a fitting conclusion of a work accomplished, and an auspicious commencement to a professional career.

J. T.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

A monthly meeting was held January 14th, 1868. Dr. Wildman, President, in the chair. The sections were called in order and reported progress.

Dr. Wildman described a new method of putting up teeth on a stamped plate. It could be applied to any plate by means of an alloy. The piece exhibited had an aluminum base. The plan was patented by Dr. G. Brown.

Dr. Buckingham considered this a preferable way to casting aluminum, as that metal does not melt readily, but becomes of doughy consistence.

Dr. Barker said the objection made to plates, that they were heavy, was in his opinion of minor importance. With a good fit and well-made cavity, weight need not be taken into consideration. He considered lower jaw cases would be improved by an increase of weight.

Dr. Wert described a case in his practice of a peculiar character, evidently a fracture produced by a blow. Being in some doubt of the correctness of his diagnosis, he sent the patient to Dr. Barker.

Dr. B. stated patient came to him, but he could not obtain any evidence of fracture, and was about to decide none existed, when patient pressed his tongue against right lateral and canine, exhibiting a fracture between the bicuspid and canine, extending in an oblique longitudinal direction. Case was a simple one, but interesting on account of difficulty in diagnosis.

Dr. Githens instanced a case where all the teeth were loose, and Dr. Wert another similar in character.

After some discussion on the rubber question, the meeting adjourned.

At a monthly meeting of the Association held February 11, 1868, Dr. Buckingham described the "Bridgeport Rubber." It is rather darker than Company's rubber but more tough. It is equal if not superior to hard rubber, but does not polish as readily, owing to the linseed oil contained in it. This is said not to interfere with the Goodyear patent. It takes three hours to vulcanize, but cuts better, and will evidently bear more without fracture.

Drs. Wert and Githens instanced several interesting cases in practice.

Dr. Truman desired an explanation, if any could be given, why a lateral tooth of a patient of his should discolor on the labial surface, midway between neck and cutting edge. This tooth had been treated in the ordinary way for dead nerve, root filled partially, and, as it was somewhat discolored, an attempt was made to bleach it. The patient was not seen for some days, when the tooth presented a black band $\frac{1}{4}$ of an inch in width, entirely across the tooth from each lateral margin. The discoloration evidently had penetrated the enamel tissue.*

A discussion ensued, mainly between Drs. Buckingham and Truman, on nutrition of teeth and bleaching.

Dr. Truman had never been able to prove that teeth received their nutrition from the periosteum. His efforts to pass colored fluids through the cementum to the denture had failed. It was an easy matter to inject the tubes from the pulp canal. The experiments were, however, by no means conclusive, as all experience was positive in character, that the tooth does receive its nutriment mainly from that source.

---

* This case has since been bleached satisfactorily.

Dr. Buckingham regarded the fact that Dr. T. had not been able to pass coloring fluids through the microscopic passages in the tooth as by no means a positive affirmation that ordinary fluid could not enter. The particles of coloring matter were evidently too large to pass the minute openings. If, by any means, pressure could be brought to bear, he thought teeth could be injected, for he was satisfied there was a constant flow of nutrient fluid through all the tubes and spaces of the tooth.

The discussion was continued at some length on bleaching.

Dr. Smedley, of West Chester, instanced a peculiar case of toothache, desiring the opinion of members. Remarks were made by several.

On motion of Dr. Truman, Alveolar Abscess was selected for the meeting in March.

Editorial.

DENTAL JOURNALS.

"*Deutsche Vierletzahorsschrift*," or Quarterly Journal of Dentistry. Organ of the Central Association of German Dentists. Edited by Dr. AD. ZU NEDDEN, Nuremberg.

We have received the numbers of the above journal for 1867, and also that for January, 1868.

We have been much interested in glancing over the contents, and gratified at that peculiar thoroughness so prominently a German characteristic in all investigations. If they could infuse a portion of this quality into their fellow-workers on this side of the water, and they receive a portion of our more advanced *practical* ideas, we think both would be the gainers. We have enough—perhaps none to spare—of good practical operators, but we do lack that earnest abnegation of self, in an effort to develop the truths that still lie hidden beneath the surface, which require labor to bring them to the light of day.

We present to our readers two articles from the number of January, 1868, which, we think, possess unusual interest. The first a condensed statement of Magitot's views upon a subject that has occupied some thought in this country. Whether his treatment will do all that is claimed for it, remains, as far as we are concerned, to be proved.

The second article, from the same pen, gives a statement of Dr. Leber's views on dental caries, and is eminently suggestive of thought. If the theory there propounded of the origin and increase of that disease be true, it enables us to solve many conditions hitherto considered unexplainable by any theory yet advanced. Caries has been the shuttlecock of theorists in our profession since its organization as such, and to the present moment no explanation, that we are aware of, has ever been given that would meet all the conditions found existing in teeth. Whether this theory of vegetable growths being the cause can be sustained, will, of course, depend on future observations; but we do not pretend to conceal our gratification that at least an intelligent answer to the oft mooted question—"By what is caries produced?"—comes to us from the land of deep thinkers and accurate observers, and in a shape that enables us to hope that this subject may be cleared of the many difficulties that have hitherto surrounded it. J. T.

We receive regularly in exchange for the Dental Times the Buffalo *Medical and Surgical Journal*, published in Buffalo, N. Y.; and the Nashville *Journal of Medicine and Surgery*, published in Nashville, Tenn. These two journals, although devoted exclusively to medicine and surgery, contain a large amount of information useful to dentists; and we are surprised that so few dentists subscribe for such periodicals. Medicine and dentistry are so intimately connected that the study of one must necessarily benefit the other.

No one can properly practice a specialty without having a general knowledge of the whole science.

It may not be necessary for him to study as minutely the details of all the branches as if he were practising them; but he should have at least a comprehensive idea of the whole.

Every intelligent dentist will admit that physicians might do a great amount of good, and relieve a great deal of suffering, if they were better informed in regard to the diseases of the teeth, and their effects upon the general health. It is not required that they should know how to fill teeth or insert them, or even extract them, but they should know the effects they produce, both locally and on the general system, and the remedies for these effects.

Now, if this is the case with physicians, is it not much more so with dentists?

Do we not have patients coming to us every week who are suffering from some constitutional disorder, and for which it is almost useless to operate until some constitutional remedies are employed? We will not discuss here the propriety of dentists taking charge of such cases and treating them, nor of physicians attempting to extract, fill or treat the diseases to which teeth are liable; but every person will admit that either should know enough, at least, to give their patients advice how to find relief. It would be well if both dentists and physicians could pass regularly through the colleges of both professions and become thoroughly acquainted with each other's practice; but as this is hardly possible, except in isolated cases, we must take the next best thing, and glean what we can from these publications; and from no other source can we obtain as much information as from these periodicals. T. L. B.

THE COMMENCEMENTS.

The colleges, both of dentistry and of medicine, have had their commencements, and, we believe, to the satisfaction of all interested. We had the pleasure of attending but one outside of our own professional schools, that of the College of Pharmacy, held at the Academy of Music. This beautiful structure adds much to the interest felt on such occasions, and we doubt not that the audiences would gain by the change, if all could occupy this building.

From what we can gather, most of the Colleges of Dentistry in other portions of the country have had large classes. This is encouraging for the future.

In another part of this number will be found the report of our own commencement. It will be seen that our class of regular students equalled that of any previous year; amongst these we have had more than the usual number from abroad. Germany, France, Spain and Switzerland had each a representative, with the usual large attendance from Cuba and other sections. Altogether, we may indulge in a pardonable gratification in the reputation Philadelphia possesses in foreign countries in her dental schools. This character can, however, only be kept up by increasing labor to elevate the standard of professional education. We think material progress has been made in this direction during the past winter.

The entertainment given to the students of both colleges of this city, by Dr. S. S. White, was, we doubt not, a pleasant occasion to all concerned, and we hope provocative of good professional feeling. J. T.

☞ In this number will be found the beginning of a paper on the Manufacture of Gold Foil, from the pen of Wm. H. Eakins.

This gentleman's foil enjoys a deservedly high reputation in this market, and we doubt not his explanation of the modes of preparing it, will be valuable information to those not familiar with the peculiar processes necessary to render it fit for our use. J. T.

CONTRIBUTIONS TO COLLEGE MUSEUM.

We desire to acknowledge the receipt, and to return our grateful thanks, for contributions to the department of comparative anatomy in our Museum, from Mr. Wm. M. Hunt, of Waterloo, N. Y. We are under previous obligations to this gentleman for similar favors. We indulge the hope that this example of one, not a member of our profession, may be followed by those more directly interested in college instruction. Museums are necessarily of slow creation, and we are dependent, to a large extent, on the kindness of our professional friends at a distance.

We are also indebted to Dr. J. R. Thompson, of South Carolina, for a valuable pathological specimen; to Drs. Brown, of Illinois, and Arango, of Cuba, for two fine specimens of geminated teeth; to Dr. I. W. Little, of New Hampshire, for a valuable evidence of the dangerous use of the key, so much in favor in former times, but now happily out of general use.

J. T.

MICROSCOPIC SOCIETY.

Two preliminary meetings have been held recently to organize an association to advance the interests of microscopy. They were attended by a large number of those interested in this subject. We have no doubt, from the earnestness manifested, that an active organization will be perfected. No permanent plan of operation has yet been decided upon, and we hope it will not be until all conflicting interests are carefully and liberally considered. Those of our own profession, who take an active interest in microscopy, should avail themselves of this opportunity for improvement at once.

J. T.

WALKER'S EXCELSIOR AMALGAM.

A NEW MATERIAL FOR FILLING AND PRESERVING THE TEETH.

This amalgam adapts itself readily to the walls of the cavity, can be easily and rapidly manipulated, does not contract nor oxidize, and becomes exceedingly hard. A few trials with it will demonstrate these claims.

It is economical compared with other amalgams of less price; an ounce of this will go farther, by one-third, than any other amalgam, as it can be worked longer without losing its plasticity, so that less of it will be wasted in using it. It costs but one cent more on each filling than the cheap, poor articles. It requires less mercury than any other amalgam in use, and becomes harder in a shorter time.

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Prepared by R. WALKER, Dentist,
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N. B.—The superior quality of this amalgam has induced unprincipled men to counterfeit it. A miserable, poor article, claiming to be "WALKER'S EXCELSIOR AMALGAM," has been traced to parties in Brooklyn, N. Y. The *Genuine Amalgam* hereafter will have our Monogram Trade Mark and Signature on the brown envelope inside. Refuse all others. Buy of responsible parties, or order from the manufacturer.

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243 *North Ninth Street.*

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Thirteenth Annual Session, 1868-'69.

Preliminary Lectures and Instructions.—The Dispensary and Laboratory of the College will be opened on the 1st of September, where ample opportunities will be afforded the student, until the close of the session, for the prosecution of the practical part of the profession, under the guidance and supervision of Demonstrators of known integrity and capability; and during October Preliminary Lectures will be delivered. In this month, as well as through the entire session, a clinical lecture will be given, and operations performed by one of the Professors every Saturday afternoon.

THE REGULAR SESSION

Will commence on the first Monday in November, and continue until the first of March ensuing. The course is so arranged that about eighteen lectures will be delivered each week on the various branches taught in the College. A synopsis of which is given below:

CHEMISTRY.

The Course of Instruction from this Chair will commence with the considerations of the forces that act upon matter, and the laws which govern those forces. Chemical nomenclature, the individual elements, and the compounds resulting from their combination, will then be considered. The course will be illustrated by diagrams and such experiments as can be performed before the class.

MECHANICAL DENTISTRY AND METALLURGY.

The instructions from this chair will embrace—the proper fitting up of a dental laboratory, the use of tools, refining, melting, alloying, and working of the precious metals, and the properties and combinations or alloys of the base metals used by the dentist; the description of the materials, their preparation,

and the most approved formula for making porcelain teeth and blocks, together with the proper manner of compounding them; the history and properties of all substances called into requisition in making dental substitutes; the entire range of manipulation of the different materials used as a base, from the impression to the completion, and proper adjustment of the case in the mouth, and such other information as appertains to this chair. The lectures will be amply illustrated by specimens, models and diagrams, and the practical application will be given in the Laboratory, under the supervision of an accomplished Mechanical Dentist.

DENTAL PATHOLOGY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist. They will also include a careful examination of therapeutic agents and their general application. Their indication in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated. Special attention will be directed to the application of all the Anæsthetic Agents.

ANATOMY AND SURGERY.

The instruction in this department will embrace a plain and comprehensive view of the structure of the human body. The lectures and the demonstrations will be given over *the dead body dissected for the express purpose* of elucidating the subject. With the same object, vivisections on the lower animals, while under the influence of an Anæsthetic Agent, will be employed. Such description of the comparative anatomy, microscopical structure and connections of the teeth, as their importance may demand, will be fully given. The valuable and extensive collections of Anatomical Preparations of the incumbent of this chair, consisting of wet and dried specimens, papier mache manikins, models in wood, and accurate French plates, will enable him to illustrate his course of lectures very clearly.

In addition to the above course, a Surgical Clinic will be held by Doctor Forbes during every week, for the purpose of performing such operations in oral and general Surgery as may be deemed advisable to advance the student in this particular branch of knowledge. The cases will be selected from a dispensary which the Faculty have established.

DENTAL HISTOLOGY AND OPERATIVE DENTISTRY.

The lectures of this department will embrace the comparative anatomy of the teeth, the functions and microscopical pecularities of the dental organs, the development of teeth and their component tissues. It will also include a full description of the materials and instruments used in operative dentistry, and will comprise a thorough elucidation of all the operations required of the Dental Practitioner, such as filling, extracting, regulating, &c. &c. A portion of the course will be devoted to a description of the microscope and the modes of preparing specimens. The incumbent of this chair will practically demonstrate in the clinic the theories taught.

PHYSIOLOGY AND HYGIENE.

The intention of the course on Physiology and Hygiene will be to convey a knowledge of the essential principles of general and human physiology, in such a mode as will best develop their application to the preservation of health. The subjects of physiology and hygiene will be, to some extent, interwoven, with a constant aim at clearness and simplicity of instruction.

CLINICAL INSTRUCTIONS.

In addition to the above, with the exception of Saturday, four hours are daily spent by the student in actual practice under the supervision of the Demonstrators.

In the Operative Department.—To afford every facility to the student to acquire a thorough practical knowledge of this branch, the operating rooms are furnished with twenty-eight chairs, so arranged as to command the best light, and all the appliances for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use.

In the Mechanical Department.—In the Laboratory are all the conveniences for the preparation of the metals, manufacture of teeth, single and block, mounting, &c. Every process known in the profession, which has any value to the mechanical dentist, is fully taught, and receipts of valuable compounds are freely imparted; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression of the mouth to the entire construction of the denture, and its proper adjustment in the mouth of the patient. Every student is required to furnish his own bench tools, and will be provided with a drawer which he can lock.

Practical Anatomy.—The great facilities for the study of practical anatomy to be found in Philadelphia, in several well ordered and supplied dissecting rooms, present to the student advantages for its prosecution superior to those offered in any other city.

Hospital Clinics.—In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of dentistry, the celebrated hospitals and clinics of the city constantly enable the students to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Pennsylvania and Philadelphia Hospitals, two of the largest eleemosynary establishments in the world, are open to medical and dental students, free of charge.

FEES.

Matriculation, (paid but once,)	$5 00
For the Course, (Demonstrator's ticket included,)	100 00
Diploma,	30 00

TEXT BOOKS AND WORKS OF REFERENCE.

Leidy's or Gray's Anatomy; Carpenter's or Kirk's Physiology; United States Dispensatory; Pereira's, Biddle's or Stille's Therapeutics; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; Hartshorne's Principles and Practice of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Wildman's Instructions in Vulcanite Work; Barker on Nitrous Oxide; Gross' or Erichsen's System of Surgery; Paget's Surgical Pathology, or other standard works on the subject.

QUALIFICATIONS FOR GRADUATION.

The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College. Also satisfactory evidence of having been in practice five years, inclusive of term of pupilage, will be considered equivalent to the first course of lectures.

The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before

the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees: and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

CANDIDATES FOR GRADUATION WHO HAVE NOT ATTENDED LECTURES.—Dentists who have been in continued practice since 1852, are eligible to be candidates for graduation without attendance on lectures. The candidate for graduation must present satisfactory evidence of his having been in practice for the allotted time, also of his good standing in the profession. He must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must present specimens of his workmanship. He must undergo a satisfactory examination by the Faculty, on each of the branches taught by them; when, if qualified, he shall be recommended to the Board of Trustees, and if approved, shall receive the degree of Doctor of Dental Surgery. Of this class of graduates, the matriculation and diploma fees only are required.

For further information, address

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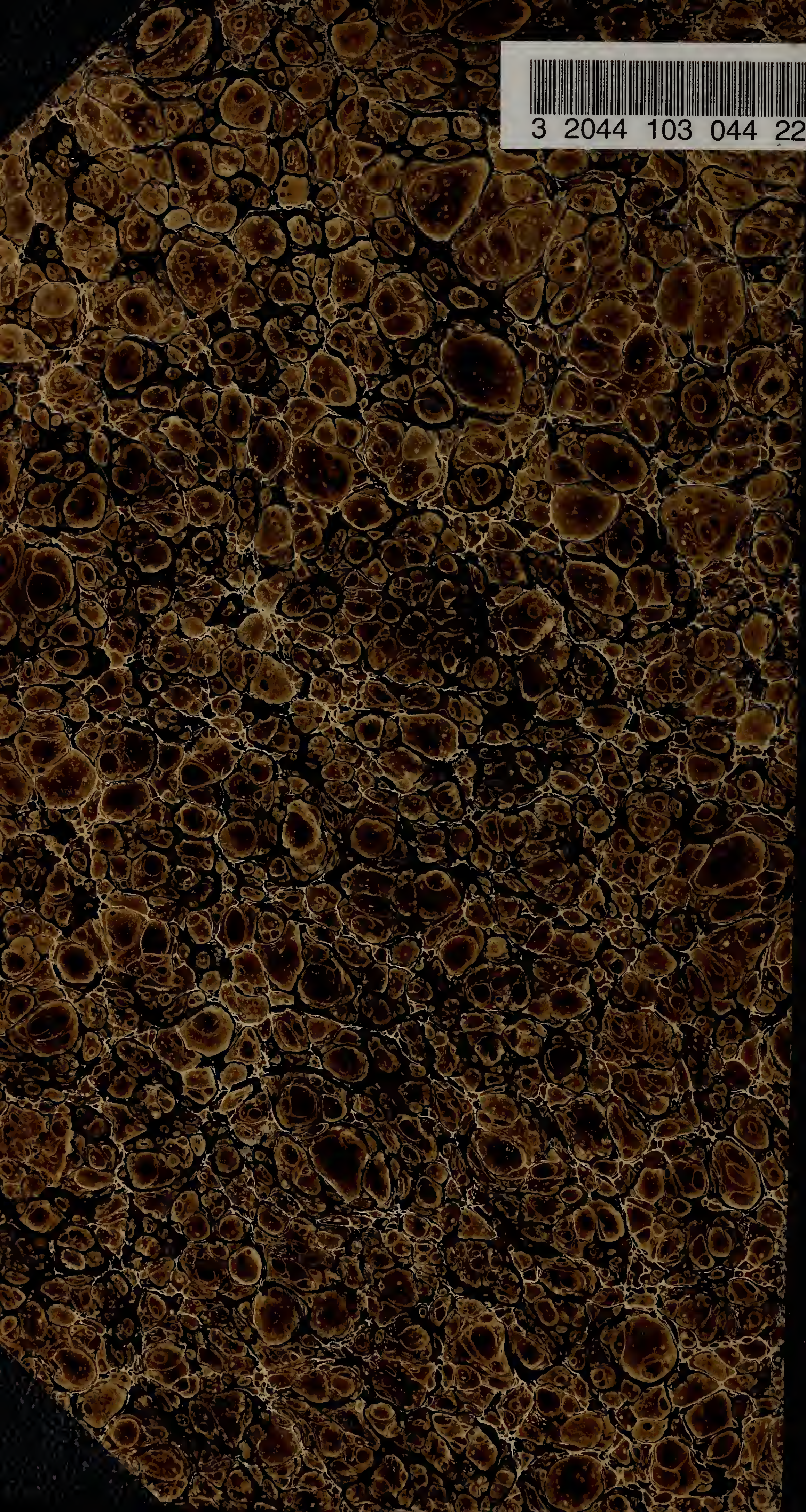
DENTIST'S REFINED TIN FOIL,

WM. H. EAKINS,
No. 2 So. Seventh Street,
PHILADELPHIA, PA.



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